Doxy-addition

Doxycycline-Test in vivo (hIL-3)

41,2

16,8

14,7

8,7

ng/ml

45 — 40 — 35 — 30 — 25 — 20 — 15 — 10 — 5

1 6 11 16 21 26 31 36 41 46 51 56 61 66 71 76 81 86 91 96 101 106 111 116 121 126 131 136

Wochentage

FIG.1

Doxy-addition

Doxycycline-Test in vivo (hIL-6)

ng/ml blood (hIL-6)

FIG.2

Wochentage

ng/ml

Scid-mice [OG,SM,OD,SC(-)]:hIL-6

scid 4 [UI-SC(-)]

scid 3 (UI-OD)

scid 2 (UI-SM)

scid 1 (UI-OG)

scid 4 [UI-SC(-)]

scid 3b (UI-OD)

scid 3 (UI-OD)

scid (UI-SM)

scid 1 (UI-OG)

0.3499

0.8136

2.282

4.01

4.215

2.746

2.078

14.01.00

22.12.99

pg/ml

5
4,5
4
3,5
3
2,5
2
1,5
1
0,5
0

FIG.3

nude mouse 4 and scid mouse 0 (SN),LC

day 101(11.08.99)

scid mouse 0(SN)

nude mouse 4

47,24

with Doxycycline

with Doxycycline

bleeding date:
03.05.99,
11.05.99,
26.05.99,
21.06.99,
24.09.99,
22.12.99,
14.01.00

2,98

1,055 1,055 1,381

pg/ml CNTF

50
45
40
35
30
25
20
15
10
5
0

0   50   100   150   200   250   300

FIG.3a

Doxycycline-Test in vivo (nude mice2)

Doxycycline
(in drinking water)

◆ ng/ml blood

bleeding date:
22.04.99,29.04.99,
11.05.99,10.06.99,
22.07.99,30.07.99,
06.08.99

ng/ml CNTF

Days

FIG.3b

Cloning of growth factor genes

FIG.4

A
H-3
+MK

B
H3

C
MK

D
H3hIL6
+MK

E
H3hI
L6

F
MK
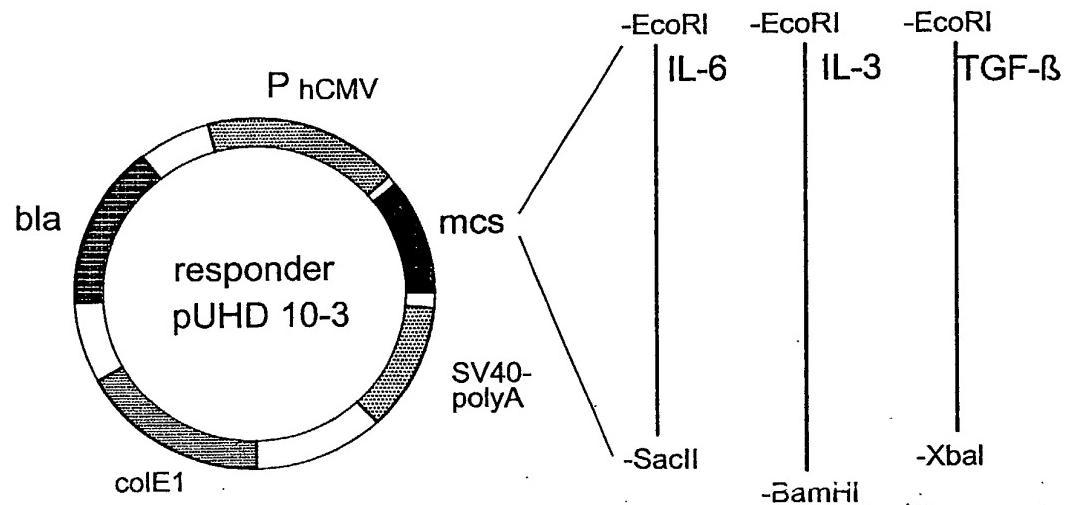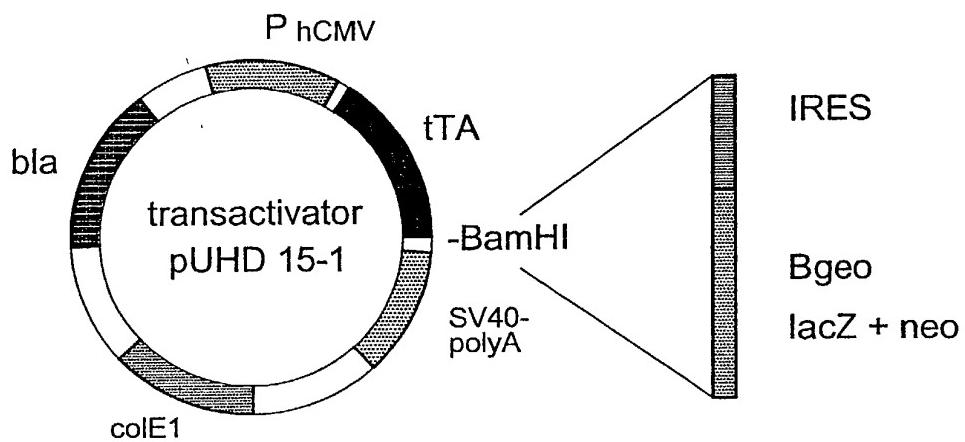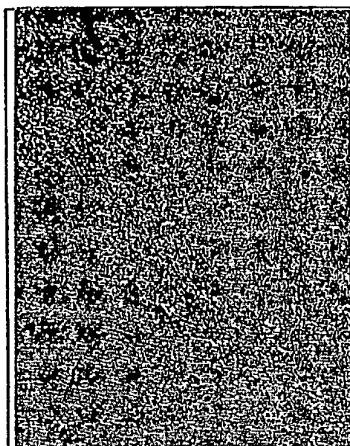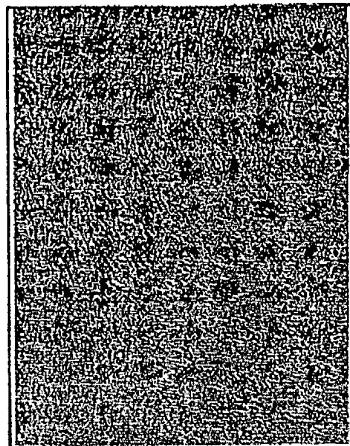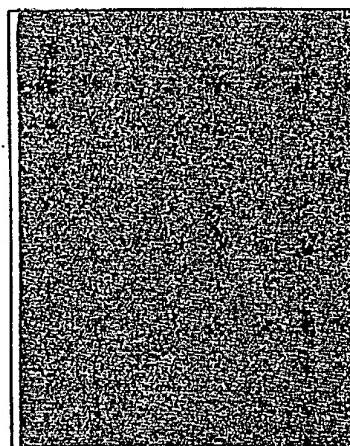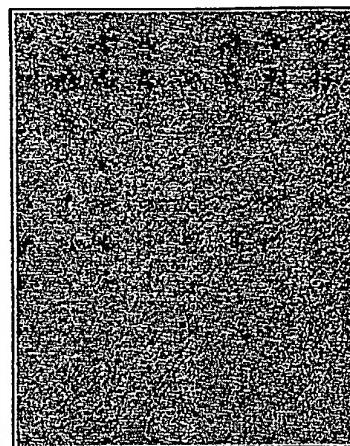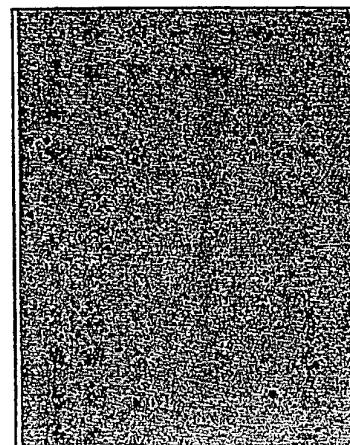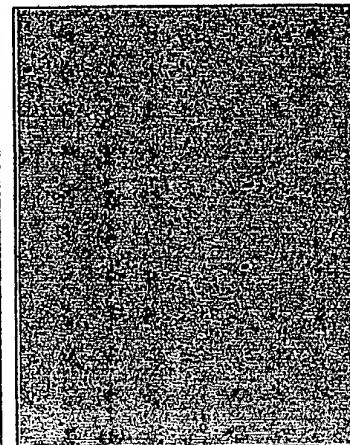
FIG.5
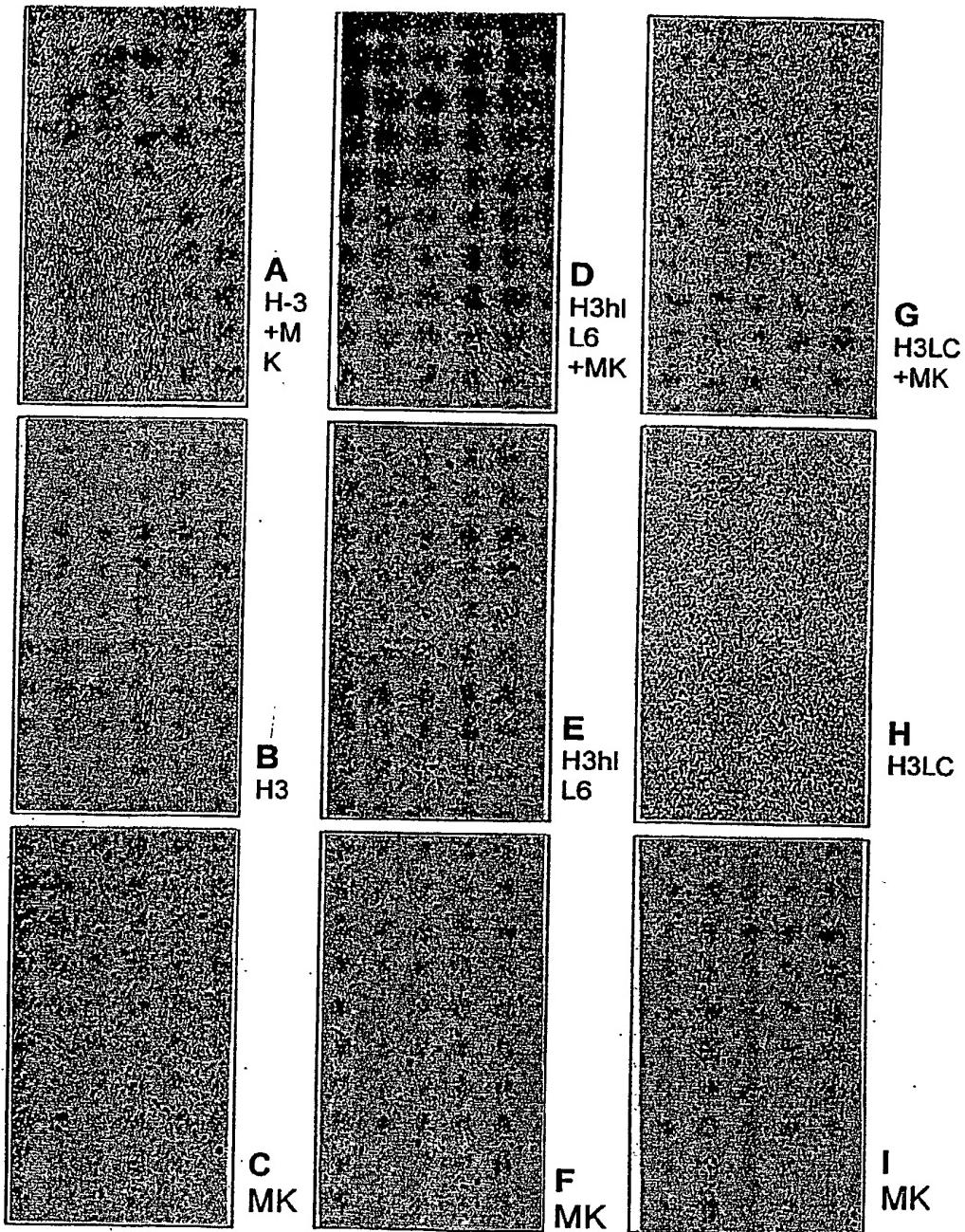
5wk

FIG.6

A.MK(MK+H3-GFP)   B.H3-GFP(MK+H3-GFP
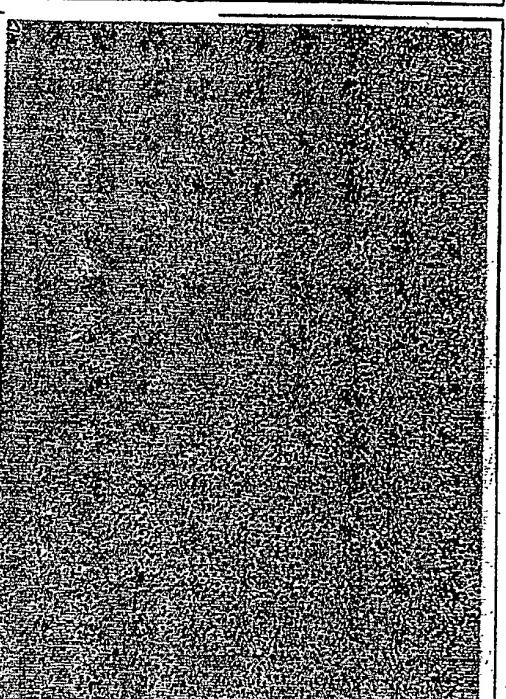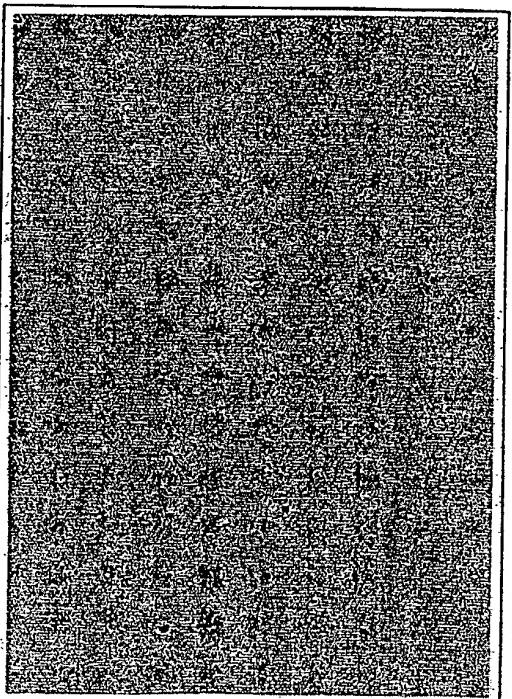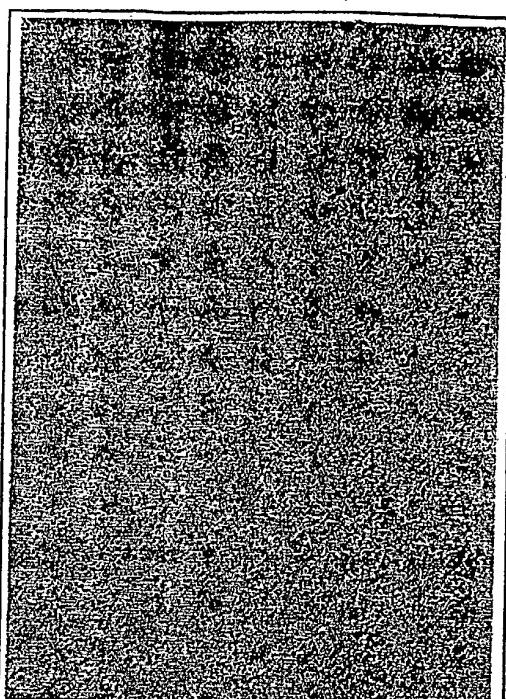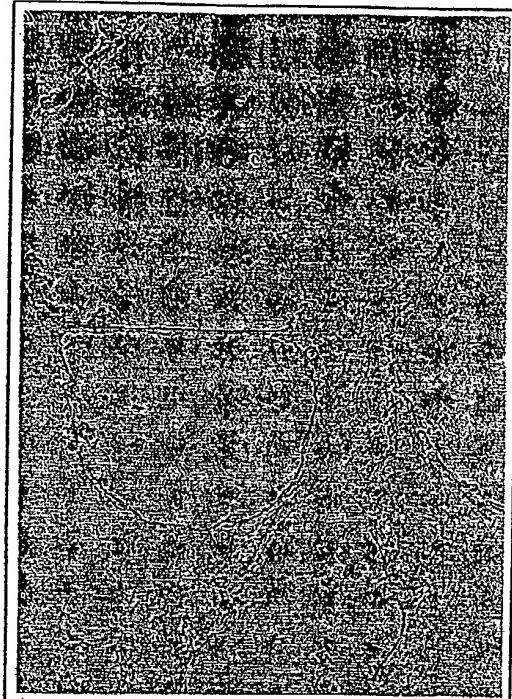
C.MK alone   D.H3-GFP alone

FIG.7
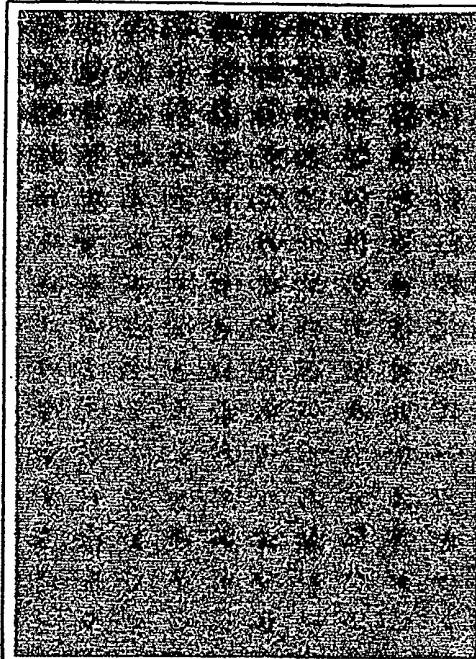
A.MK (MK+H3-GFP-hIL6)　　　　　　B.H3-GFP-hIL6(MK+H3-GFP-hIL6)
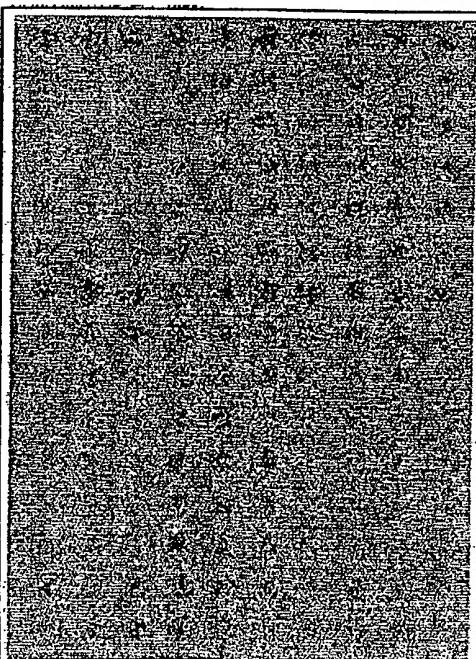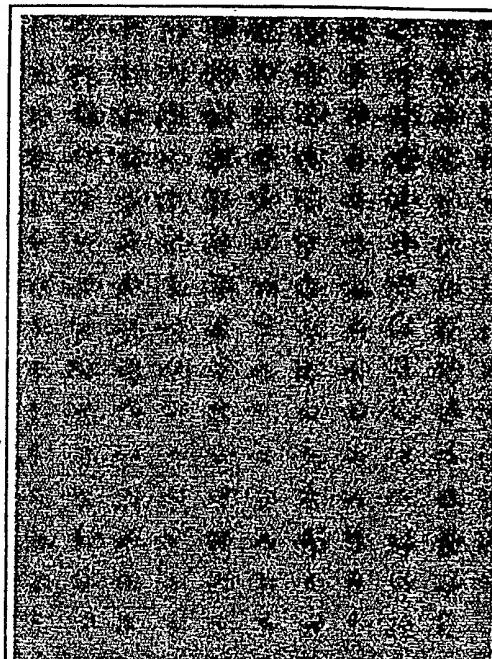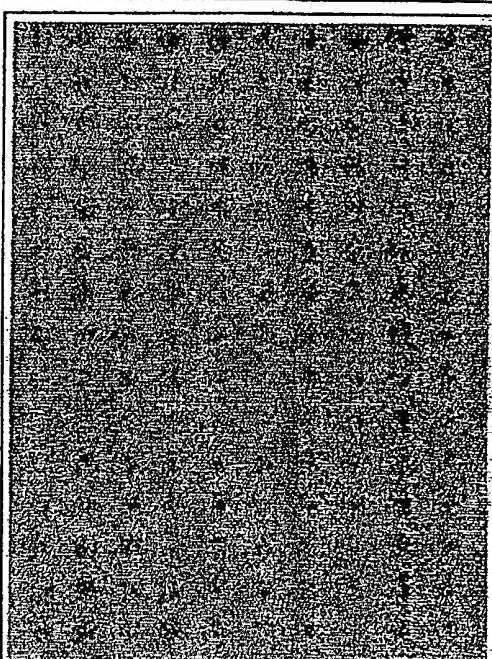
C.MK alone　　　　　　　　　　　　D.H3-GFP-hIL6 alone

FIG.8
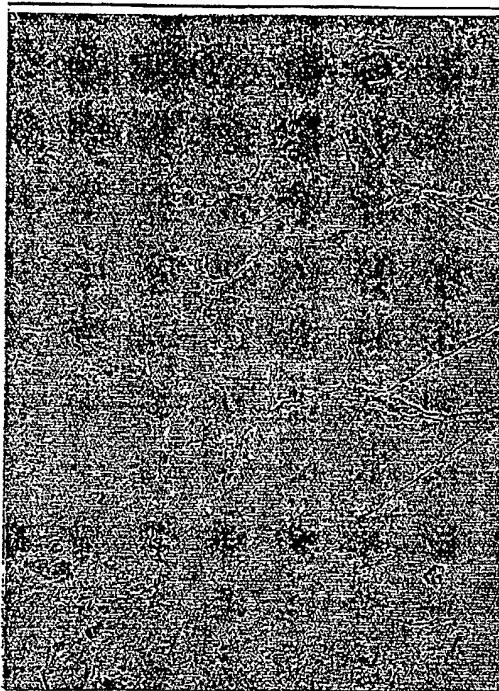
A.MK (MK+H3-LC)   B.H3-LC (MK+H3-LC)
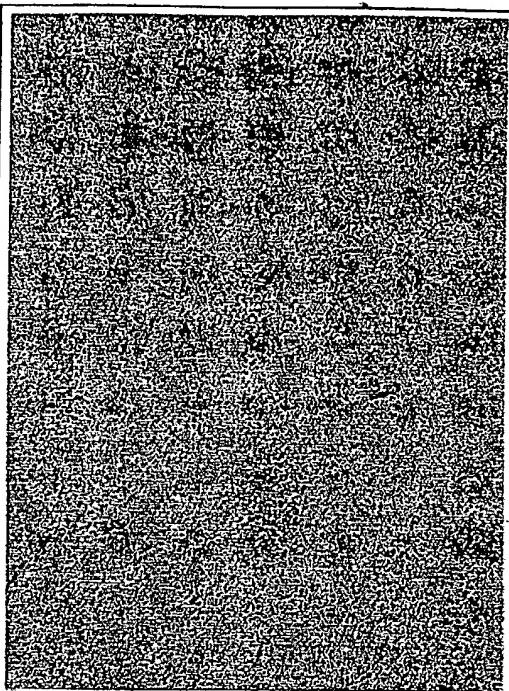
C.MK alone   FIG.9   D.H3-LC alone
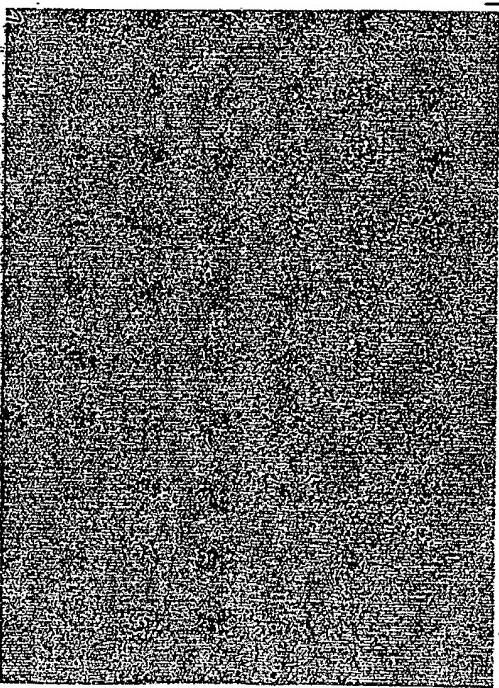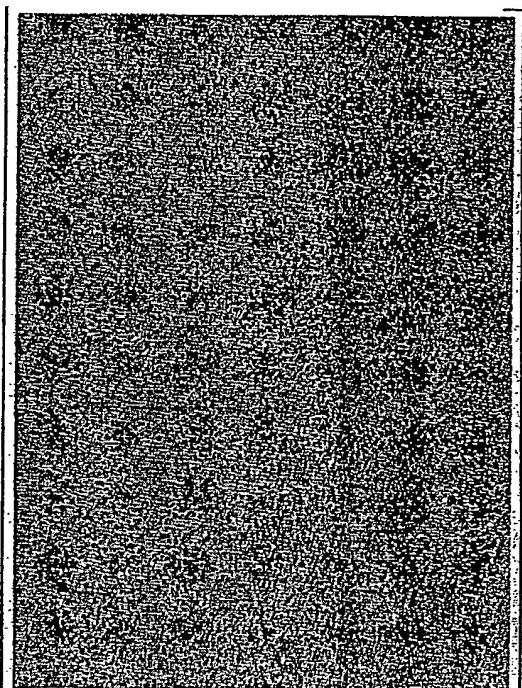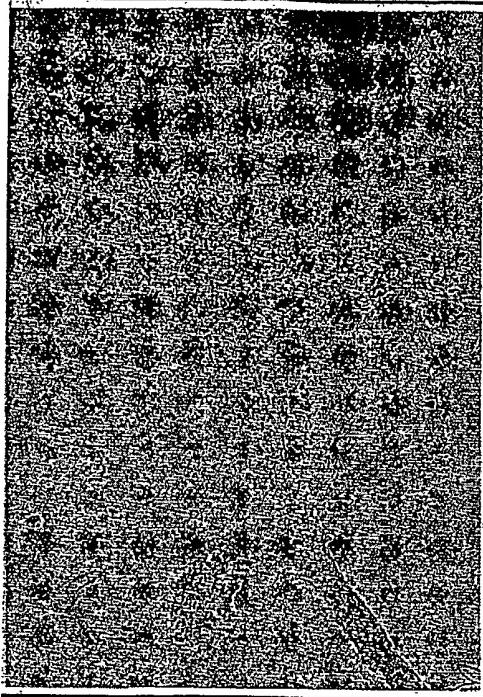
A.Sk (Sk+H3-GFP)   B.H3-GFP (Sk+H3-GFP)
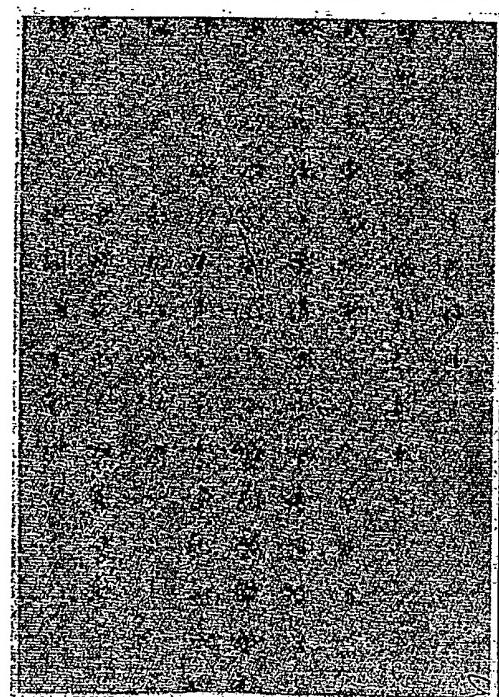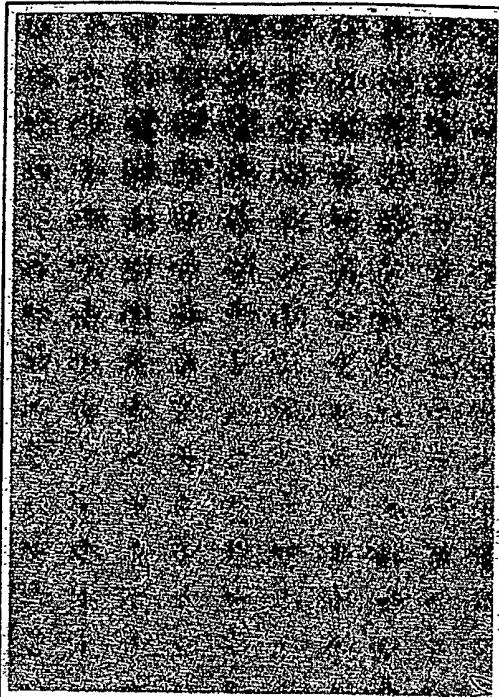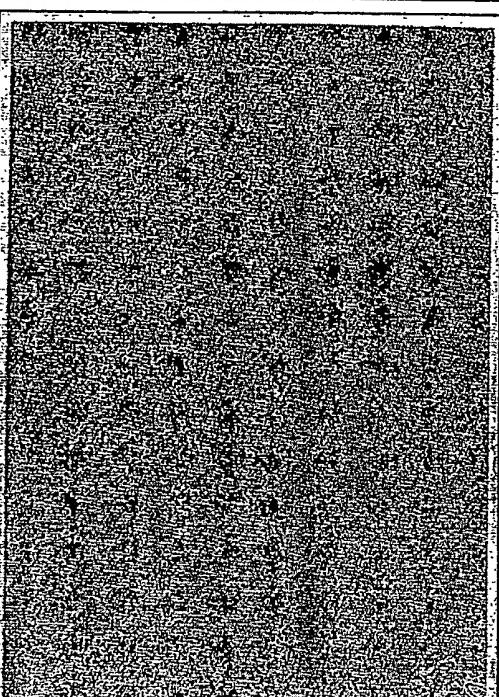
C.Sk alone   D.H3-GFP alone

FIG.10

A. SK (Sk+H3-GFP-hIL6) - 13/56 -   B. H3-GFP-hIL6 (Sk+H3-GFP-hIL6)

C. Sk alone

D. H3-GFP-hIL6 alone
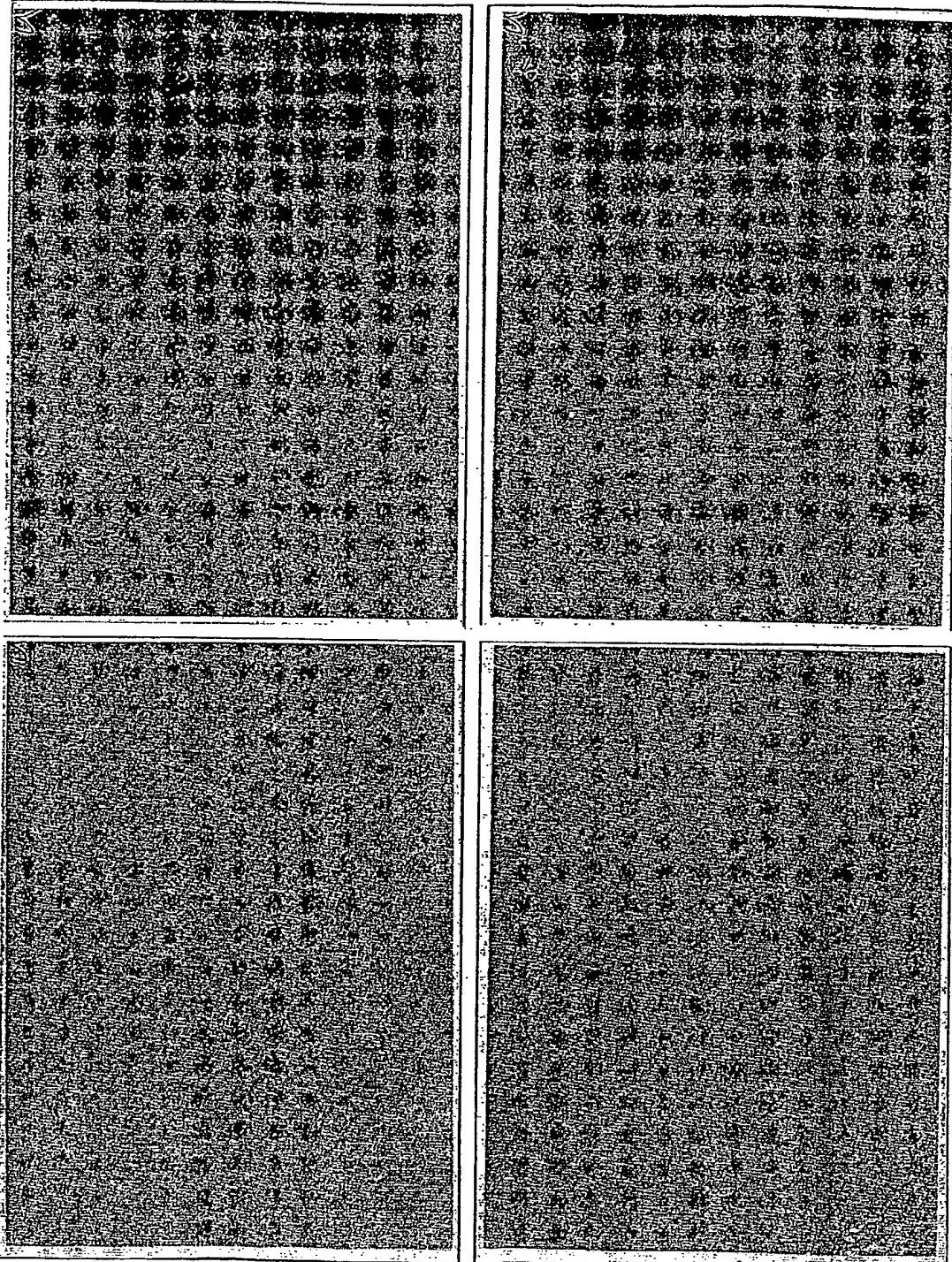
FIG.11
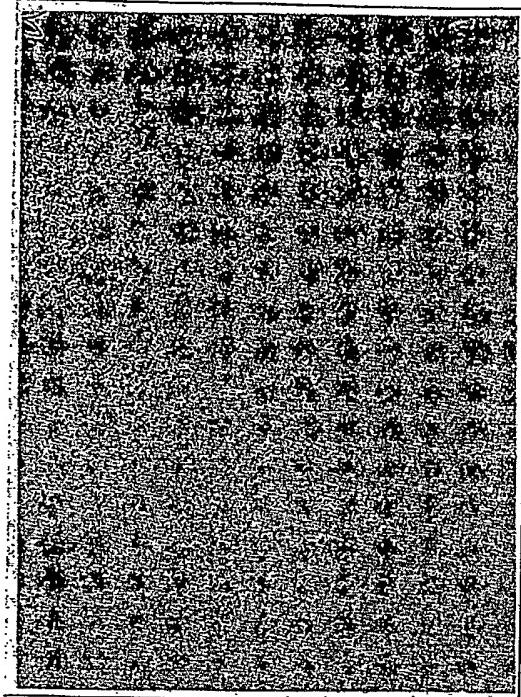
A. Sk (Sk+H3-LC)

B. H3-LC (Sk+H3-LC)
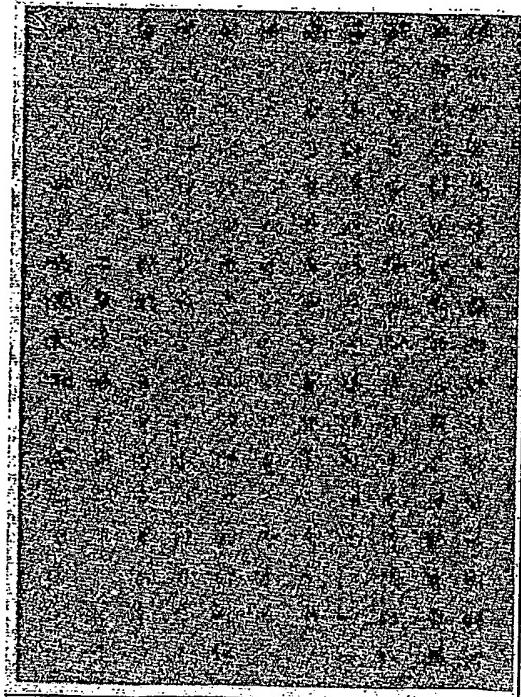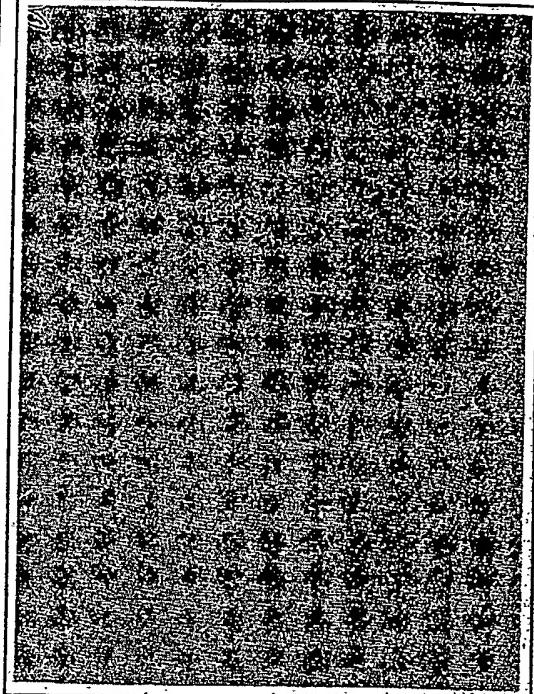
C. Sk alone
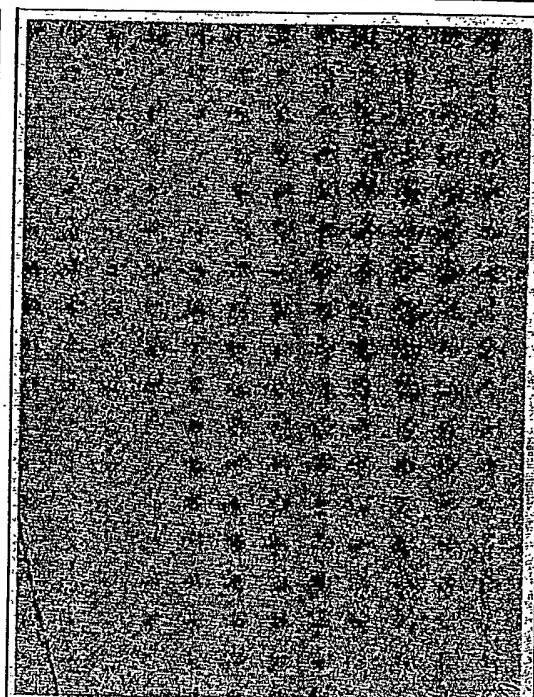
D. H3-LC alone

FIG.12

A. Sk (Sk+MK)
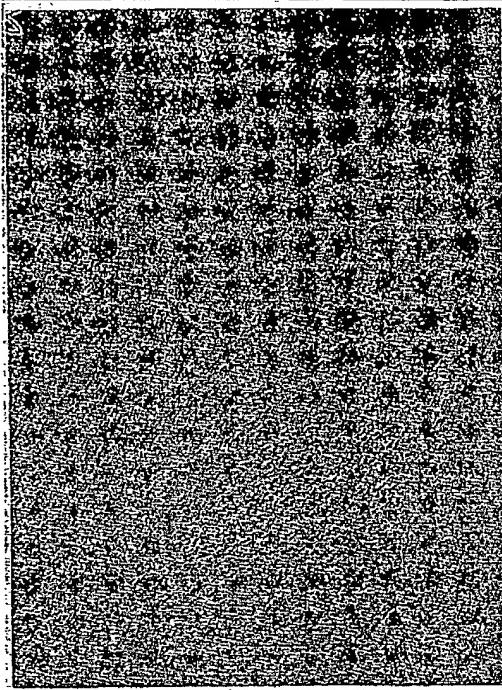
B. MK (Sk+MK)
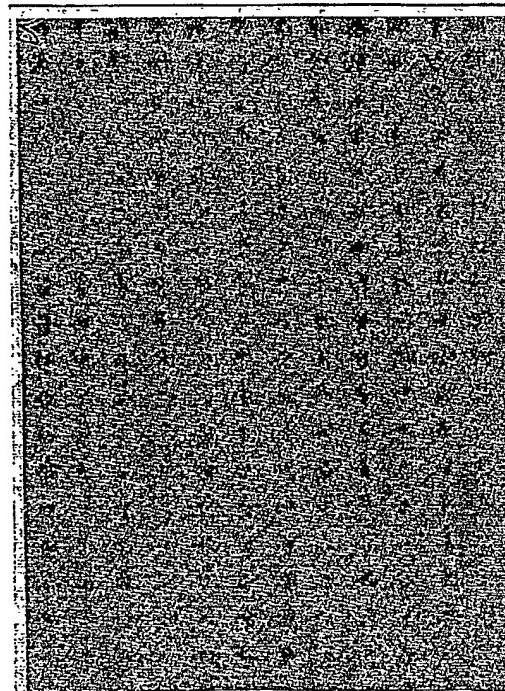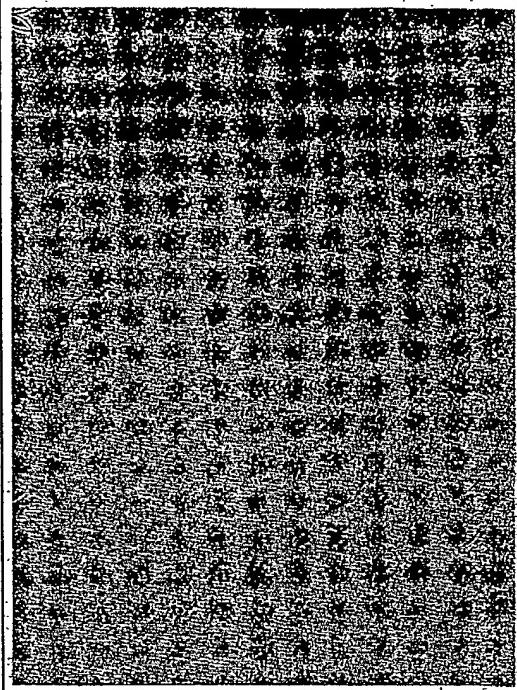
C. Sk alone

D. MK alone

FIG.13
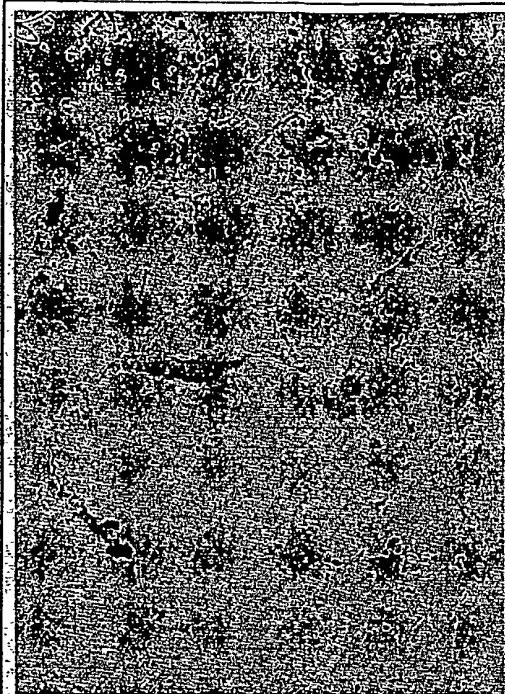
A.Lg (Lg+L14)　　　　　　　　　　B. L14 (Lg+L14)

C. Lg alone　　　　　　　　　　D. L14 alone
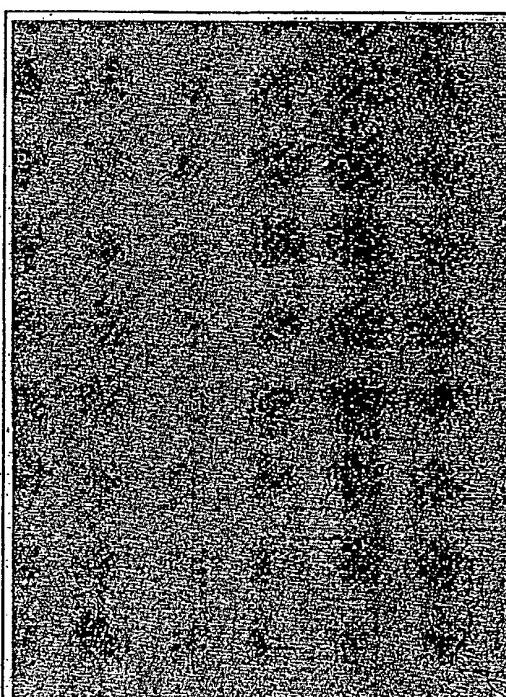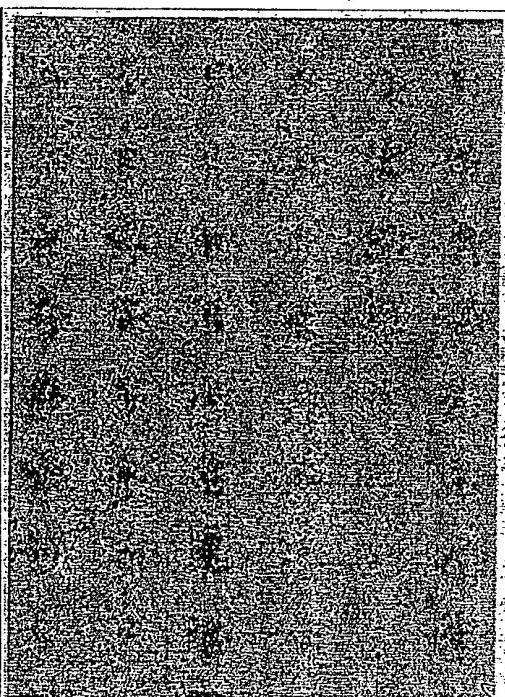
FIG.14

A. Lg (Lg+L14-hIL3)

B. L14-hIL3 (Lg+L14-hIL3)

C. Lg alone

D. L14-hIL3 alone
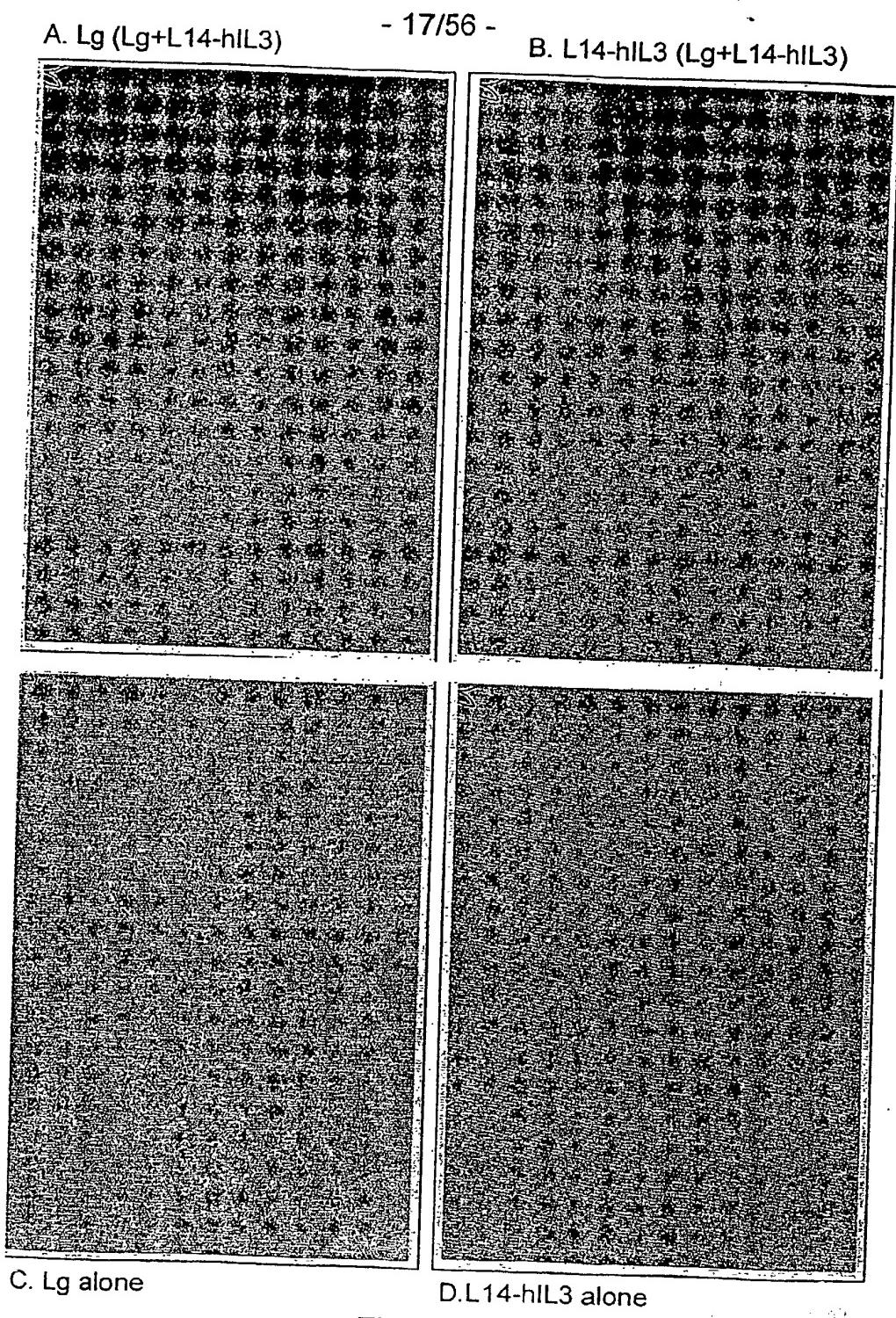
FIG.15

FIG.16
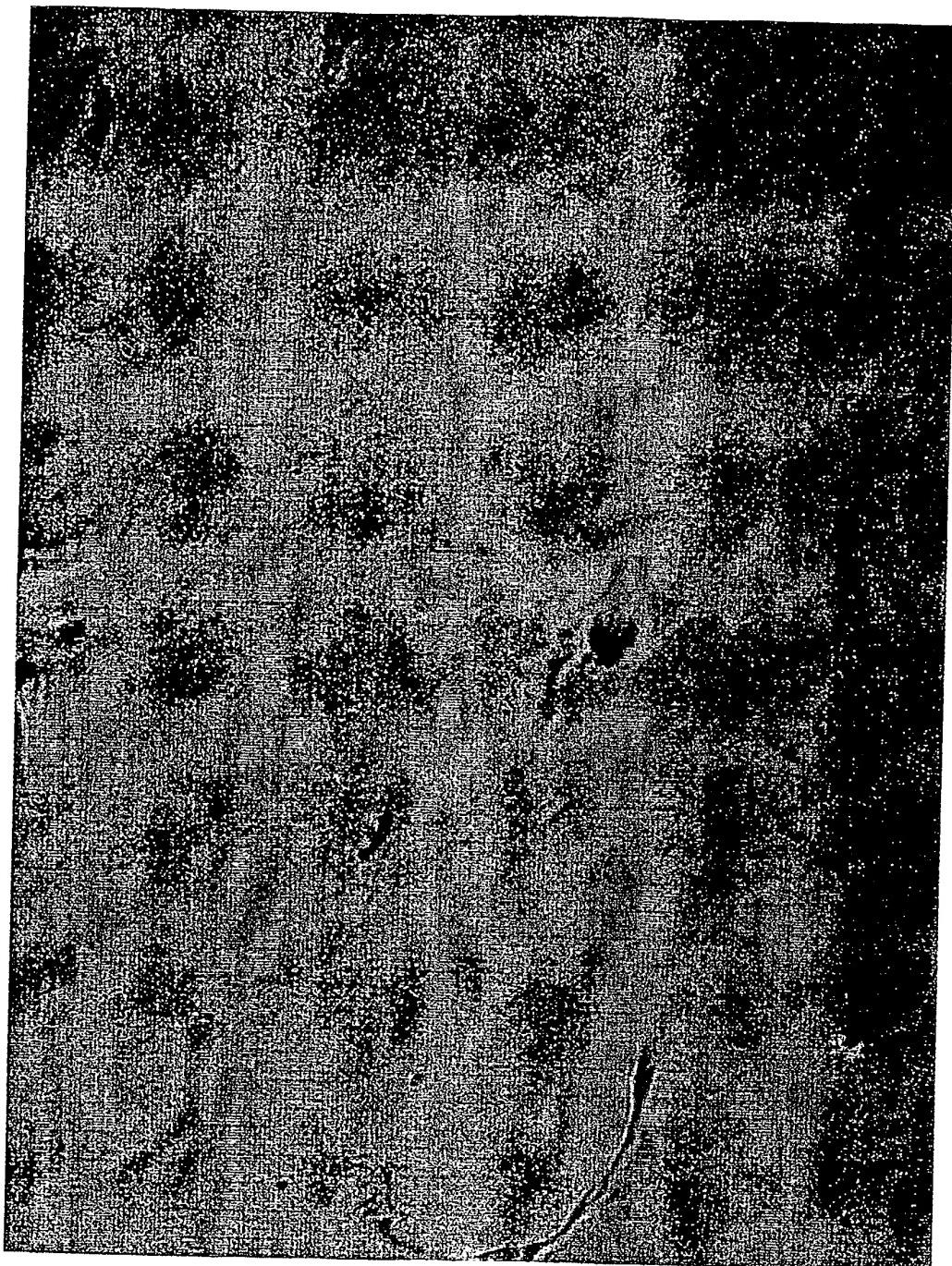
Fig. 17.

pD12JCVPlong-hCNTF

Length: 7969 July 22, 1999

```
     1  GCTAGCGATT TAGGTGACAC TATAGAATAG ATCtcgacnn nGTCACCCCT
    51  AGAGTCGAGC TGTGACGGTC CTTACAATGA AATGCANCTG GGTTATCTTC
   101  TTCCTGATGG CAGGGGTTAC AGGTAAGGGG CTCCCAAGTC CCAAACTTGA
   151  GGGTCCATAA ACTCTGTGAC AGTGGCAATC ACTTTGCCTT TCTTTCTACA
   201  GGGGTGAATT CGGCTTTCAC AGAGCATTCA CCGCTGACCC CTCACCGTCG
   251  GGACCTCTGT AGCCGCTCTA TCTGGCTAGC AAGGAAGATT CGTTCAGACC
   301  TTGACTGCTC TTACGGAATC CTATGTAAGT TGCCTATTTT GCTGTTATCT
   351  GTTTTCCCTT CATCTTTTTT GATCCAGCAA CTTACCATCA CGCATCAGCT
   401  CCATTACCAA TTGTGAAAGC TCTAATCATA TAGTCATTCA TATAGGTTAT
   451  TTGACATGGG CCCTTCCCTT GAGGAAACCC ATGTGACTTT ATTTTCTTCC
   501  TCTGGGCTGT TTAGGAGATG AAGTTACTTG AATGAGAAAA TATATATGGA
   551  GTTCTAGAAA GGATTGGTTT ATATGTCTTG GAGGCTATTT CAAAATTTAT
   601  TTGGCCATAT ATTCTGAATA CTACCTAGAA CAGATTAGCC ATGGGCCCTN
   651  TGGGTTNTTC ATAAGCCATT GTTCTGAANT TTTTTAGCTT TGTAAATGAA
   701  AGGTTTATGG GATAGGAAGA GTNCTATGAA CGTGGGAGGA ATTTGTAAAT
   751  CCTACCAATT TNTNCTATAT AGCATTAGCC CCCACCTTTT ANTATTCTGC
   801  ATCAAAAGTA AGATTGTGTC TAAAGAGAAA GGTNAGCTAT CAAAAGGACT
   851  CCTATAANAT TCNTTGGAAA CTTNTGGAAN TGTCAAATTT NTTTGAGCTA
   901  ATTNTTGGAG TTCCAAANTT TGTCTTNTNA CAGTNAAGGG GGANCCCCAT
   951  TCANATTTNC CCCCCTNNNG ANAATGCTTG GGGGAAAAAA CCTNCCAACC
  1001  CCNTTGTGGG ANGAAGTTTT TTTAANNTTT TAAGGCTNGN NGAAACNGGN
  1051  TTTTAATTTT TTGGGNCNAN CGCCTNTCCC CGGTACCAGG AAAATCAGGA
  1101  CCTNTTTTTG GGGNNGNGCN CCNACNGGGG GGNAAAANGG GAAATTTCNT
  1151  CANAAAAAAT CTTTTCCGnn nnnngtgaag catcagggcc tgaacaagaa
  1201  catcaacctg gactctgcgg atgggatgcc agtggcaagc actgatcagt
  1251  ggagtgagct gaccgaggca gagcgactcc aagagaacct tcaagcttat
```

Fig. 18

```
1301   cgtaccttcc atgttttgtt ggccaggctc ttagaagacc agcaggtgca

1351   ttttacccca accgaaggtg acttccatca agctatacat acccttcttc

1401   tccaagtcgc tgcctttgca taccagatag aggagttaat gatactcctg

1451   gaatacaaga tcccccgcaa tgaggctgat gggatgccta ttaatgttgg

1501   agatggtggt ctctttgaga agaagctgtg gggcctaaag gtgctgcagg

1551   agctttcaca gtggacagta aggtccatcc atgaccttcg tttcatttct

1601   tctcatcaga ctgggatccc agcacgtggg agccattata ttgctaacaa

1651   caagaaaatg tagnnnnngc ggccTGCGCC GTCTTTCCCG ACGTTAAAGG

1701   GATGAAACCA CAAGACTTAC CTTCGCTCGG AAGTAAAACG ACAAACACAC

1751   ACAGTTTTGC CCGTTTTCAT GAGAAATGGG ACGTCTGCGC ACGAAACGCG

1801   CCGTCGCTTG AGGAGGACTT GTACAAACAC GATCTATGCA GGTTTCCCCA

1851   ACTGACACAA ACCGTGCAAC TTGAAACTCC GCCTGGTCTT CCAGGTCTA

1901   GAGGGGTAAC ATTTTGTACT GTGTTTGACT CCACGCTCGA TCCACTAGCG

1951   AGTGTTAGTA GCGGTACTGC TGTCTCGTAG CGGAGCATGT TGGCCGTGGG

2001   AACACCTCCT TGGTAACAAG ACCCACGGG GCCGAAAGCC ATGTCCTAAC

2051   GGACCCAACA TGTGTGCAAC CCCAGCACGG CAGCTTTACT GTGAAACCCA

2101   CTTCAAGGTG ACATTGATAC TGGTACTCAA ACACTGGTGA CAGGCTAAGG

2151   ATGCCCTTCA GGTACCCCGA GGTAACAAGC GACACTCGGG ATCTGAGAAG

2201   GGGACTGGGA CTTCTTTAAA GTGCCCAGTT TAAAAAGCTT CTACGCCTGA

2251   ATAGGTGACC GGAGGCCGGC ACCTTTCCTT TTATAACCAC TGAACACATG

2301   GAAGACGCCA AAAACATAAA GAAAGGCCCG GCGCCATTCT ATCCTCTAGA

2351   GGATGGAACC GCTGGAGAGC AACTGCATAA GGCTATGAAG AGATACGCCC

2401   TGGTTCCTGG AACAATTGCT TTTACAGATG CACATATCGA GGTGAACATC

2451   ACGTACGCGG AATACTTCGA AATGTCCGTT CGGTTGGCAG AAGCTATGAA

2501   ACGATATGGG CTGAATACAA ATCACAGAAT CGTCGTATGC AGTGAAAACT

2551   CTCTTCAATT CTTTATGCCG GTGTTGGGCG CGTTATTTAT CGGAGTTGCA

2601   GTTGCGCCCG CGAACGACAT TTATAATGAA CGTGAATTGC TCAACAGTAT

2651   GAACATTTCG CAGCCTACCG TAGTGTTTGT TTCCAAAAAG GGGTTGCAAA
```

Fig. 18

```
2701  AAATTTTGAA  CGTGCAAAAA  AAATTACCAA  TAATCCAGAA  AATTATTATC

2751  ATGGATTCTA  AAACGGATTA  CCAGGGATTT  CAGTCGATGT  ACACGTTCGT

2801  CACATCTCAT  CTACCTCCCG  GTTTTAATGA  ATACGATTTT  GTACCAGAGT

2851  CCTTTGATCG  TGACAAAACA  ATTGCACTGA  TAATGAATTC  CTCTGGATCT

2901  ACTGGGTTAC  CTAAGGGTGT  GGCCCTTCCG  CATAGAACTG  CCTGCGTCAG

2951  ATTCTCGCAT  GCCAGAGATC  CTATTTTTGG  CAATCAAATC  ATTCCGGATA

3001  CTGCGATTTT  AAGTGTTGTT  CCATTCCATC  ACGGTTTTGG  AATGTTTACT

3051  ACACTCGGAT  ATTTGATATG  TGGATTTCGA  GTCGTCTTAA  TGTATAGATT

3101  TGAAGAAGAG  CTGTTTTTAC  GATCCCTTCA  GGATTACAAA  ATTCAAAGTG

3151  CGTTGCTAGT  ACCAACCCTA  TTTTCATTCT  TCGCCAAAAG  CACTCTGATT

3201  GACAAATACG  ATTTATCTAA  TTTACACGAA  ATTGCTTCTG  GGGGCGCACC

3251  TCTTTCGAAA  GAAGTCGGGG  AAGCGGTTGC  AAAACGCTTC  CATCTTCCAG

3301  GGATACGACA  AGGATATGGG  CTCACTGAGA  CTACATCAGC  TATTCTGATT

3351  ACACCCGAGG  GGGATGATAA  ACCGGGCGCG  GTCGGTAAAG  TTGTTCCATT

3401  TTTTGAAGCG  AAGGTTGTGG  ATCTGGATAC  CGGGAAAACG  CTGGGCGTTA

3451  ATCAGAGAGG  CGAATTATGT  GTCAGAGGAC  CTATGATTAT  GTCCGGTTAT

3501  GTAAACAATC  CGGAAGCGAC  CAACGCCTTG  ATTGACAAGG  ATGGATGGCT

3551  ACATTCTGGA  GACATAGCTT  ACTGGGACGA  AGACGAACAC  TTCTTCATAG

3601  TTGACCGCTT  GAAGTCTTTA  ATTAAATACA  AAGGATATCA  GGTGGCCCCC

3651  GCTGAATTGG  AATCGATATT  GTTACAACAC  CCCAACATCT  TCGACGCGGG

3701  CGTGGCAGGT  CTTCCCGACG  ATGACGCCGG  TGAACTTCCC  GCCGCCGTTG

3751  TTGTTTTGGA  GCACGGAAAG  ACGATGACGG  AAAAAGAGAT  CGTGGATTAC

3801  GTCGCCAGTC  AAGTAACAAC  CGCGAAAAAG  TTGCGCGGAG  GAGTTGTGTT

3851  TGTGGACGAA  GTACCGAAAG  GTCTTACCGG  AAAACTCGAC  GCAAGAAAAA

3901  TCAGAGAGAT  CCTCATAAAG  GCCAAGAAGG  GCGGAAAGTC  CAAATTGTAA

3951  AATGTAACTG  TATTCAGCGA  TGACGAAATT  CTTAGCTATT  GTAATGACTC

4001  TAGAGGATCT  TTGTGAAGGA  ACCTTACTTC  TGTGGTGTGA  CATAATTGGA

4051  CAAACTACCT  ACAGAGATTT  AAAGCTCTAA  GGTAAATATA  AAATTTTTAA
```

Fig. 18

```
4101   GTGTATAATG TGTTAAACTA CTGATTCTAA TTGTTTGTGT ATTTTAGATT

4151   CCAACCTATG GAACTGATGA ATGGGAGCAG TGGTGGAATG CCTTTAATGA

4201   GGAAAACCTG TTTTGCTCAG AAGAAATGCC ATCTAGTGAT GATGAGGCTA

4251   CTGCTGACTC TCAACATTCT ACTCCTCCAA AAAAGAAGAG AAAGGTAGAA

4301   GACCCCAAGG ACTTTCCTTC AGAATTGCTA AGTTTTTTGA GTCATGCTGT

4351   GTTTAGTAAT AGAACTCTTG CTTGCTTTGC TATTTACACC ACAAAGGAAA

4401   AAGCTGCACT GCTATACAAG AAAATTATGG AAAAATATTC TGTAACCTTT

4451   ATAAGTAGGC ATAACAGTTA TAATCATAAC ATACTGTTTT TTCTTACTCC

4501   ACACAGGCAT AGAGTGTCTG CTATTAATAA CTATGCTCAA AAATTGTGTA

4551   CCTTTAGCTT TTTAATTTGT AAAGGGGTTA ATAAGGAATA TTTGATGTAT

4601   AGTGCCTTGA CTAGAGATCA TAATCAGCCA TACCACATTT GTAGAGGTTT

4651   TACTTGCTTT AAAAAACCTC CCACACCTCC CCCTGAACCT GAAACATAAA

4701   ATGAATGCAA TTGTTGTTGT TAACTTGTTT ATTGCAGCTT ATAATGGTTA

4751   CAAATAAAGC AATAGCATCA CAAATTTCAC AAATAAAGCA TTTTTTTCAC

4801   TGCATTCTAG TTGTGGTTTG TCCAAACTCA TCAATGTATC TTATCATGTC

4851   TGGATCCCCG GGTCCCTATA GTGAGTCGTA TTAGCTTGGC GTAATCATGG

4901   TCATAGCTGT TTCCTGTGTG AAATTGTTAT CCGCTCACAA TTCCACACAA

4951   CATACGAGCC GGAAGCATAA AGTGTAAAGC CTGGGGTGCC TAATGAGTGA

5001   GCTAACTCAC ATTAATTGCG TTGCGCTCAC TGCCCGCTTT CCAGTCGGGA

5051   AACCTGTCGT GCCAGCTGCA TTAATGAATC GGCCAACGCG CGGGGAGAGG

5101   CGGTTTGCGT ATTGGGCGCT CTTCCGCTTC CTCGCTCACT GACTCGCTGC

5151   GCTCGGTCGT TCGGCTGCGG CGAGCGGTAT CAGCTCACTC AAAGGCGGTA

5201   ATACGGTTAT CCACAGAATC AGGGGATAAC GCAGGAAAGA ACATGTGAGC

5251   AAAAGGCCAG CAAAAGGCCA GGAACCGTAA AAAGGCCGCG TTGCTGGCGT

5301   TTTTCCATAG GCTCCGCCCC CCTGACGAGC ATCACAAAAA TCGACGCTCA

5351   AGTCAGAGGT GGCGAAACCC GACAGGACTA TAAAGATACC AGGCGTTTCC

5401   CCCTGGAAGC TCCCTCGTGC GCTCTCCTGT TCCGACCCTG CCGCTTACCG

5451   GATACCTGTC CGCCTTTCTC CCTTCGGGAA GCGTGGCGCT TTCTCAATGC
```

Fig. 18

```
5501   TCACGCTGTA GGTATCTCAG TTCGGTGTAG GTCGTTCGCT CCAAGCTGGG

5551   CTGTGTGCAC GAACCCCCCG TTCAGCCCGA CCGCTGCGCC TTATCCGGTA

5601   ACTATCGTCT TGAGTCCAAC CCGGTAAGAC ACGACTTATC GCCACTGGCA

5651   GCAGCCACTG GTAACAGGAT TAGCAGAGCG AGGTATGTAG GCGGTGCTAC

5701   AGAGTTCTTG AAGTGGTGGC CTAACTACGG CTACACTAGA AGGACAGTAT

5751   TTGGTATCTG CGCTCTGCTG AAGCCAGTTA CCTTCGGAAA AAGAGTTGGT

5801   AGCTCTTGAT CCGGCAAACA AACCACCGCT GGTAGCGGTG GTTTTTTTGT

5851   TTGCAAGCAG CAGATTACGC GCAGAAAAAA AGGATCTCAA GAAGATCCTT

5901   TGATCTTTTC TACGGGGTCT GACGCTCAGT GGAACGAAAA CTCACGTTAA

5951   GGGATTTTGG TCATGAGATT ATCAAAAAGG ATCTTCACCT AGATCCTTTT

6001   AAATTAAAAA TGAAGTTTTA AATCAATCTA AAGTATATAT GAGTAAACTT

6051   GGTCTGACAG TTACCAATGC TTAATCAGTG AGGCACCTAT CTCAGCGATC

6101   TGTCTATTTC GTTCATCCAT AGTTGCCTGA CTCCCCGTCG TGTAGATAAC

6151   TACGATACGG GAGGGCTTAC CATCTGGCCC CAGTGCTGCA ATGATACCGC

6201   GAGACCCACG CTCACCGGCT CCAGATTTAT CAGCAATAAA CCAGCCAGCC

6251   GGAAGGGCCG AGCGCAGAAG TGGTCCTGCA ACTTTATCCG CCTCCATCCA

6301   GTCTATTAAT TGTTGCCGGG AAGCTAGAGT AAGTAGTTCG CCAGTTAATA

6351   GTTTGCGCAA CGTTGTTGCC ATTGCTACAG GCATCGTGGT GTCACGCTCG

6401   TCGTTTGGTA TGGCTTCATT CAGCTCCGGT TCCCAACGAT CAAGGCGAGT

6451   TACATGATCC CCCATGTTGT GCAAAAAAGC GGTTAGCTCC TTCGGTCCTC

6501   CGATCGTTGT CAGAAGTAAG TTGGCCGCAG TGTTATCACT CATGGTTATG

6551   GCAGCACTGC ATAATTCTCT TACTGTCATG CCATCCGTAA GATGCTTTTC

6601   TGTGACTGGT GAGTACTCAA CCAAGTCATT CTGAGAATAG TGTATGCGGC

6651   GACCGAGTTG CTCTTGCCCG GCGTCAATAC GGGATAATAC CGCGCCACAT

6701   AGCAGAACTT TAAAAGTGCT CATCATTGGA AAACGTTCTT CGGGGCGAAA

6751   ACTCTCAAGG ATCTTACCGC TGTTGAGATC CAGTTCGATG TAACCCACTC

6801   GTGCACCCAA CTGATCTTCA GCATCTTTTA CTTTCACCAG CGTTTCTGGG

6851   TGAGCAAAAA CAGGAAGGCA AAATGCCGCA AAAAAGGGAA TAAGGGCGAC
```

Fig. 18

```
6901  ACGGAAATGT TGAATACTCA TACTCTTCCT TTTTCAATAT TATTGAAGCA

6951  TTTATCAGGG TTATTGTCTC ATGAGCGGAT ACATATTTGA ATGTATTTAG

7001  AAAAATAAAC AAATAGGGGT TCCGCGCACA TTTCCCCGAA AAGTGCCACC

7051  TGACGTCTAA GAAACCATTA TTATCATGAC ATTAACCTAT AAAAATAGGC

7101  GTATCACGAG GCCCTTTCGT CTCGCGCGTT TCGGTGATGA CGGTGAAAAC

7151  CTCTGACACA TGCAGCTCCC GGAGACGGTC ACAGCTTGTC TGTAAGCGGA

7201  TGCCGGGAGC AGACAAGCCC GTCAGGGCGC GTCAGCGGGT GTTGGCGGGT

7251  GTCGGGGCTG GCTTAACTAT GCGGCATCAG AGCAGATTGT ACTGAGAGTG

7301  CACCATATGC GGTGTGAAAT ACCGCACAGA TGCGTAAGGA GAAAATACCG

7351  CATCAGGCGC CATTCGCCAT TCAGGCTGCG CAACTGTTGG GAAGGGCGAT

7401  CGGTGCGGGC CTCTTCGCTA TTACGCCAGC TGGCGAAAGG GGGATGTGCT

7451  GCAAGGCGAT TAAGTTGGGT AACGCCAGGG TTTTCCCAGT CACGACGTTG

7501  TAAAACGACG GCCAGTGAAT TTCGACCTGC AGTCGACAGA AGCCTTACGT

7551  GACAGCTGGC GAAGAACCAT GGCCAGCTGG TGACAAGCCA AAACAGCTCT

7601  GGCTCGCAAA ACATGTTCCC TTGGCTGCTT TCCACTTCCC CTTGTGCTTT

7651  GTTTACTTGT GTCAGCTGGT TGGCTCCCTA GGTATGAGCT CATGCTTGGC

7701  TGGCAGCCAT CCAGTTTTAG CCAGCTCTGC TTTGTTTACT TGTGTCAGCT

7751  GGTTGGCTCC CTAGGTATGA GCTCATGCTT GGCTGGCAGC CATCCAGTTT

7801  TAGCCAGCTC CTCCCTACCT TCCCTTTTTT TTATATATAC AGGAGGCCGA

7851  GGCCGCCTCC GCCTCCAAGC TTACTCAGAA GTAGTAAGGG CGTGGAGGCT

7901  TTTTAGGAGG CCAGGGAAAT TCCCTTGTTT TTCCCTTTTT TGCAGTAATT

7951  TTTTGCTGCA AAAAGCTAA
```

Fig. 18

JCVPlong-gdnf Length: 6971 June 8, 1999 16:42 Type: N Check: 3588 ..
```
   1  GCTAGCGATT TAGGTGACAC TATAGAATAG ATCCCCATGA AGTTATGGGA
  51  TGTCGTGGCT GTCTGCCTGG TGCTGCTCCA CACCGCGTCC GCCTTCCCGC
 101  TGCCCGCCGG TAAGAGGCCT CCCGAGGCGC CCGCCGAAGA CCGCTCCCTC
 151  GGCCGCCGCC GCGCGCCCTT CGCGCTGAGC AGTGACTCAA ATATGCCAGA
 201  GGATTATCCT GATCAGTTCG ATGATGTCAT GGATTTTATT CAAGCCACCA
 251  TTAAAAGACT GAAAAGGTCA CCAGATAAAC AAATGGCAGT GCTTCCTAGA
 301  AGAGAGCGGA ATCGGCAGGC TGCAGCTGCC AACCCAGAGA ATTCCAGAGG
 351  AAAAGGTCGG AGAGGCCAGA GGGGCAAAAA CCGGGGTTGT GTCTTAACTG
 401  CAATACATTT AAATGTCACT GACTTGGGTC TGGGCTATGA AACCAAGGAG
 451  GAACTGATTT TTAGGTACTG CAGCGGCTCT TGCGATGCAG CTGAGACAAC
 501  GTACGACAAA ATATTGAAAA ACTTATCCAG AAATAGAAGG CTGGTGAGTG
 551  ACAAAGTAGG GCAGGCATGT TGCAGACCCA TCGCCTTTGA TGATGACCTG
 601  TCGTTTTTAG ATGATAACCT GGTTTACCAT ATTCTAAGAA AGCATTCCGC
 651  TAAAAGGTGT GGATGTATCT GACTGGTGCG CCGTCTTTCC CGACGTTAAA
 701  GGGATGAAAC CACAAGACTT ACCTTCGCTC GGAAGTAAAA CGACAAACAC
 751  ACACAGTTTT GCCCGTTTTC ATGAGAAATG GGACGTCTGC GCACGAAACG
 801  CGCCGTCGCT TGAGGAGGAC TTGTACAAAC ACGATCTATG CAGGTTTCCC
 851  CAACTGACAC AAACCGTGCA ACTTGAAACT CCGCCTGGTC TTTCCAGGTC
 901  TAGAGGGGTA ACATTTTGTA CTGTGTTTGA CTCCACGCTC GATCCACTAG·
 951  CGAGTGTTAG TAGCGGTACT GCTGTCTCGT AGCGGAGCAT GTTGGCCGTG
1001  GGAACACCTC CTTGGTAACA AGGACCCACG GGGCCGAAAG CCATGTCCTA
1051  ACGGACCCAA CATGTGTGCA ACCCCAGCAC GGCAGCTTTA CTGTGAAACC
1101  CACTTCAAGG TGACATTGAT ACTGGTACTC AAACACTGGT GACAGGCTAA
1151  GGATGCCCTT CAGGTACCCC GAGGTAACAA GCGACACTCG GGATCTGAGA
1201  AGGGGACTGG GACTTCTTTA AAGTGCCCAG TTTAAAAAGC TTCTACGCCT
1251  GAATAGGTGA CCGGAGGCCG GCACCTTTCC TTTTATAACC ACTGAACACA
1301  TGGAAGACGC CAAAAACATA AAGAAAGGCC CGGCGCCATT CTATCCTCTA
1351  GAGGATGGAA CCGCTGGAGA GCAACTGCAT AAGGCTATGA AGAGATACGC
1401  CCTGGTTCCT GGAACAATTG CTTTTACAGA TGCACATATC GAGGTGAACA
1451  TCACGTACGC GGAATACTTC GAAATGTCCG TTCGGTTGGC AGAAGCTATG
1501  AAACGATATG GGCTGAATAC AAATCACAGA ATCGTCGTAT GCAGTGAAAA
1551  CTCTCTTCAA TTCTTTATGC CGGTGTTGGG CGCGTTATTT ATCGGAGTTG
1601  CAGTTGCGCC CGCGAACGAC ATTTATAATG AACGTGAATT GCTCAACAGT
1651  ATGAACATTT CGCAGCCTAC CGTAGTGTTT GTTTCCAAAA AGGGGTTGCA
1701  AAAAATTTTG AACGTGCAAA AAAAATTACC AATAATCCAG AAAATTATTA
1751  TCATGGATTC TAAAACGGAT TACCAGGGAT TTCAGTCGAT GTACACGTTC
1801  GTCACATCTC ATCTACCTCC CGGTTTTAAT GAATACGATT TTGTACCAGA
1851  GTCCTTTGAT CGTGACAAAA CAATTGCACT GATAATGAAT TCCTCTGGAT
1901  CTACTGGGTT ACCTAAGGGT GTGGCCCTTC CGCATAGAAC TGCCTGCGTC
1951  AGATTCTCGC ATGCCAGAGA TCCTATTTTT GGCAATCAAA TCATTCCGGA
2001  TACTGCGATT TTAAGTGTTG TTCCATTCCA TCACGGTTTT GGAATGTTTA
2051  CTACACTCGG ATATTTGATA TGTGGATTTC AATGTATAGA
2101  TTTGAAGAAG AGCTGTTTTT ACGATCCCTT CAGGATTACA AAATTCAAAG
2151  TGCGTTGCTA GTACCAACCC TATTTTCATT CTTCGCCAAA AGCACTCTGA
2201  TTGACAAATA CGATTTATCT AATTTACACG AAATTGCTTC TGGGGGCGCA
2251  CCTCTTTCGA AAGAAGTCGG GGAAGCGGTT GCAAAACGCT TCCATCTTCC
2301  AGGGATACGA CAAGGATATG GGCTCACTGA GACTACATCA GCTATTCTGA
2351  TTACACCCGA GGGGGATGAT AAACCGGGCG CGGTCGGTAA AGTTGTTCCA
2401  TTTTTTGAAG CGAAGGTTGT GGATCTGGAT ACCGGGAAAA CGCTGGGCGT
2451  TAATCAGAGA GGCGAATTAT GTGTCAGAGG ACCTATGATT ATGTCCGGTT
2501  ATGTAAACAA TCCGGAAGCG ACCAACGCCT TGATTGACAA GGATGGATGG
2551  CTACATTCTG GAGACATAGC TTACTGGGAC GAAGACGAAC ACTTCTTCAT
2601  AGTTGACCGC TTGAAGTCTT TAATTAAATA CAAAGGATAT CAGGTGGCCC
2651  CCGCTGAATT GGAATCGATA TTGTTACAAC ACCCCAACAT CTTCGACGCG
2701  GGCGTGGCAG TCTTCCCGA CGATGACGCC GGTGAACTTC CCGCCGCCGT
2751  TGTTGTTTTG GAGCACGGAA AGACGATGAC GGAAAAAGAG ATCGTGGATT
2801  ACGTCGCCAG TCAAGTAACA ACCGCGAAAA AGTTGCGCGG AGGAGTTGTG
2851  TTTGTGGACG AAGTACCGAA AGGTCTTACC GGAAAACTCG ACGCAAGAAA
2901  AATCAGAGAG ATCCTCATAA AGGCCAAGAA GGGCGGAAAG TCCAAATTGT
2951  AAAATGTAAC TGTATTCAGC GATGACGAAA TTCTTAGCTA TTGTAATGAC
3001  TCTAGAGGAT CTTTGTGAAG GAACCTTACT TCTGTGGTGT GACATAATTG
3051  GACAAACTAC CTACAGAGAT TTAAAGCTCT ·AAGGTAAATA TAAAATTTTT
3101  AAGTGTATAA TGTGTTAAAC TACTGATTCT AATTGTTTGT GTATTTTAGA
3151  TTCCAACCTA TGGAACTGAT GAATGGGAGC AGTGGTGGAA TGCCTTTAAT
3201  GAGGAAAACC TGTTTTGCTC AGAAGAAATG CCATCTAGTG ATGATGAGGC
```

Fig. 19

```
3251   TACTGCTGAC  TCTCAACATT  CTACTCCTCC  AAAAAAGAAG  AGAAAGGTAG
3301   AAGACCCCAA  GGACTTTCCT  TCAGAATTGC  TAAGTTTTTT  GAGTCATGCT
3351   GTGTTTAGTA  ATAGAACTCT  TGCTTGCTTT  GCTATTTACA  CCACAAAGGA
3401   AAAAGCTGCA  CTGCTATACA  AGAAAATTAT  GGAAAAATAT  TCTGTAACCT
3451   TTATAAGTAG  GCATAACAGT  TATAATCATA  ACATACTGTT  TTTTCTTACT
3501   CCACACAGGC  ATAGAGTGTC  TGCTATTAAT  AACTATGCTC  AAAAATTGTG
3551   TACCTTTAGC  TTTTTAATTT  GTAAAGGGGT  TAATAAGGAA  TATTTGATGT
3601   ATAGTGCCTT  GACTAGAGAT  CATAATCAGC  CATACCACAT  TTGTAGAGGT
3651   TTTACTTGCT  TTAAAAAACC  TCCCACACCT  CCCCCTGAAC  CTGAAACATA
3701   AAATGAATGC  AATTGTTGTT  GTTAACTTGT  TTATTGCAGC  TTATAATGGT
3751   TACAAATAAA  GCAATAGCAT  CACAAATTTC  ACAAATAAAG  CATTTTTTTC
3801   ACTGCATTCT  AGTTGTGGTT  TGTCCAAACT  CATCAATGTA  TCTTATCATG
3851   TCTGGATCCC  CGGGTCCCTA  TAGTGAGTCG  TATTAGCTTG  GCGTAATCAT
3901   GGTCATAGCT  GTTTCCTGTG  TGAAATTGTT  ATCCGCTCAC  AATTCCACAC
3951   AACATACGAG  CCGGAAGCAT  AAAGTGTAAA  GCCTGGGGTG  CCTAATGAGT
4001   GAGCTAACTC  ACATTAATTG  CGTTGCGCTC  ACTGCCCGCT  TTCCAGTCGG
4051   GAAACCTGTC  GTGCCAGCTG  CATTAATGAA  TCGGCCAACG  CGCGGGGAGA
4101   GGCGGTTTGC  GTATTGGGCG  CTCTTCCGCT  TCCTCGCTCA  CTGACTCGCT
4151   GCGCTCGGTC  GTTCGGCTGC  GGCGAGCGGT  ATCAGCTCAC  TCAAAGGCGG
4201   TAATACGGTT  ATCCACAGAA  TCAGGGGATA  ACGCAGGAAA  GAACATGTGA
4251   GCAAAAGGCC  AGCAAAAGGC  CAGGAACCGT  AAAAAGGCCG  CGTTGCTGGC
4301   GTTTTTCCAT  AGGCTCCGCC  CCCCTGACGA  GCATCACAAA  AATCGACGCT
4351   CAAGTCAGAG  GTGGCGAAAC  CCGACAGGAC  TATAAAGATA  CCAGGCGTTT
4401   CCCCCTGGAA  GCTCCCTCGT  GCGCTCTCCT  GTTCCGACCC  TGCCGCTTAC
4451   CGGATACCTG  TCCGCCTTTC  TCCCTTCGGG  AAGCGTGGCG  CTTTCTCAAT
4501   GCTCACGCTG  TAGGTATCTC  AGTTCGGTGT  AGGTCGTTCG  CTCCAAGCTG
4551   GGCTGTGTGC  ACGAACCCCC  CGTTCAGCCC  GACCGCTGCG  CCTTATCCGG
4601   TAACTATCGT  CTTGAGTCCA  ACCCGGTAAG  ACACGACTTA  TCGCCACTGG
4651   CAGCAGCCAC  TGGTAACAGG  ATTAGCAGAG  CGAGGTATGT  AGGCGGTGCT
4701   ACAGAGTTCT  TGAAGTGGTG  GCCTAACTAC  GGCTACACTA  GAAGGACAGT
4751   ATTTGGTATC  TGCGCTCTGC  TGAAGCCAGT  TACCTTCGGA  AAAAGAGTTG
4801   GTAGCTCTTG  ATCCGGCAAA  CAAACCACCG  CTGGTAGCGG  TGGTTTTTTT
4851   GTTTGCAAGC  AGCAGATTAC  GCGCAGAAAA  AAAGGATCTC  AAGAAGATCC
4901   TTTGATCTTT  TCTACGGGGT  CTGACGCTCA  GTGGAACGAA  AACTCACGTT
4951   AAGGGATTTT  GGTCATGAGA  TTATCAAAAA  GGATCTTCAC  CTAGATCCTT
5001   TTAAATTAAA  AATGAAGTTT  TAAATCAATC  TAAAGTATAT  ATGAGTAAAC
5051   TTGGTCTGAC  AGTTACCAAT  GCTTAATCAG  TGAGGCACCT  ATCTCAGCGA
5101   TCTGTCTATT  TCGTTCATCC  ATAGTTGCCT  GACTCCCCGT  CGTGTAGATA
5151   ACTACGATAC  GGGAGGGCTT  ACCATCTGGC  CCCAGTGCTG  CAATGATACC
5201   GCGAGACCCA  CGCTCACCGG  CTCCAGATTT  ATCAGCAATA  AACCAGCCAG
5251   CCGGAAGGGC  CGAGCGCAGA  AGTGGTCCTG  CAACTTTATC  CGCCTCCATC
5301   CAGTCTATTA  ATTGTTGCCG  GGAAGCTAGA  GTAAGTAGTT  CGCCAGTTAA
5351   TAGTTTGCGC  AACGTTGTTG  CCATTGCTAC  AGGCATCGTG  GTGTCACGCT
5401   CGTCGTTTGG  TATGGCTTCA  TTCAGCTCCG  GTTCCCAACG  ATCAAGGCGA
5451   GTTACATGAT  CCCCCATGTT  GTGCAAAAAA  GCGGTTAGCT  CCTTCGGTCC
5501   TCCGATCGTT  GTCAGAAGTA  AGTTGGCCGC  AGTGTTATCA  CTCATGGTTA
5551   TGGCAGCACT  GCATAATTCT  CTTACTGTCA  TGCCATCCGT  AAGATGCTTT
5601   TCTGTGACTG  GTGAGTACTC  AACCAAGTCA  TTCTGAGAAT  AGTGTATGCG
5651   GCGACCGAGT  TGCTCTTGCC  CGGCGTCAAT  ACGGGATAAT  ACCGCGCCAC
5701   ATAGCAGAAC  TTTAAAAGTG  CTCATCATTG  GAAAACGTTC  TTCGGGGCGA
5751   AAACTCTCAA  GGATCTTACC  GCTGTTGAGA  TCCAGTTCGA  TGTAACCCAC
5801   TCGTGCACCC  AACTGATCTT  CAGCATCTTT  TACTTTCACC  AGCGTTTCTG
5851   GGTGAGCAAA  AACAGGAAGG  CAAAATGCCG  CAAAAAAGGG  AATAAGGGCG
5901   ACACGGAAAT  GTTGAATACT  CATACTCTTC  CTTTTTCAAT  ATTATTGAAG
5951   CATTTATCAG  GGTTATTGTC  TCATGAGCGG  ATACATATTT  GAATGTATTT
6001   AGAAAAATAA  ACAAATAGGG  GTTCCGCGCA  CATTTCCCCG  AAAAGTGCCA
6051   CCTGACGTCT  AAGAAACCAT  TATTATCATG  ACATTAACCT  ATAAAAATAG
6101   GCGTATCACG  AGGCCCTTTC  GTCTCGCGCG  TTTCGGTGAT  GACGGTGAAA
6151   ACCTCTGACA  CATGCAGCTC  CCGGAGACGG  TCACAGCTTG  TCTGTAAGCG
6201   GATGCCGGGA  GCAGACAAGC  CCGTCAGGGC  GCGTCAGCGG  GTGTTGGCGG
6251   GTGTCGGGGC  TGGCTTAACT  ATGCGGCATC  AGAGCAGATT  GTACTGAGAG
6301   TGCACCATAT  GCGGTGTGAA  ATACCGCACA  GATGCGTAAG  GAGAAAATAC
6351   CGCATCAGGC  GCCATTCGCC  ATTCAGGCTG  CGCAACTGTT  GGGAAGGGCG
6401   ATCGGTGCGG  GCCTCTTCGC  TATTACGCCA  GCTGGCGAAA  GGGGGATGTG
6451   CTGCAAGGCG  ATTAAGTTGG  GTAACGCCAG  GGTTTTCCCA  GTCACGACGT
6501   TGTAAAACGA  CGGCCAGTGA  ATTTCGACCT  GCAGTCGACA  GAAGCCTTAC
6551   GTGACAGCTG  GCGAAGAACC  ATGGCCAGCT  GGTGACAAGC  CAAAACAGCT
```

Fig. 18

```
6601  CTGGCTCGCA AAACATGTTC CCTTGGCTGC TTTCCACTTC CCCTTGTGCT
6651  TTGTTTACTT GTGTCAGCTG GTTGGCTCCC TAGGTATGAG CTCATGCTTG
6701  GCTGGCAGCC ATCCAGTTTT AGCCAGCTCT GCTTTGTTTA CTTGTGTCAG
6751  CTGGTTGGCT CCCTAGGTAT GAGCTCATGC TTGGCTGGCA GCCATCCAGT
6801  TTTAGCCAGC TCCTCCCTAC CTTCCCTTTT TTTTATATAT ACAGGAGGCC
6851  GAGGCCGCCT CCGCCTCCAA GCTTACTCAG AAGTAGTAAG GGCGTGGAGG
6901  CTTTTTAGGA GGCCAGGGAA ATTCCCTTGT TTTTCCCTTT TTTGCAGTAA
6951  TTTTTTGCTG CAAAAAGCTA A
```

Fig. 19

pD12JCVPshort-hCNTF

Length: 7558

```
   1  GCTAGCGATT TAGGTGACAC TATAGAATCt cgacnnGTCA CCCCTAGAGT

  51  CGAGCTGTGA CGGTCCTTAC AATGAAATGC ANCTGGGTTA TCTTCTTCCT

 101  GATGGCAGGG GTTACAGGTA AGGGGCTCCC AAGTCCCAAA CTTGAGGGTC

 151  CATAAACTCT GTGACAGTGG CAATCACTTT GCCTTTCTTT CTACAGGGGT

 201  GAATTCGGCT TTCACAGAGC ATTCACCGCT GACCCCTCAC CGTCGGGACC

 251  TCTGTAGCCG CTCTATCTGG CTAGCAAGGA AGATTCGTTC AGACCTTGAC

 301  TGCTCTTACG GAATCCTATG TAAGTTGCCT ATTTGCTGT TATCTGTTTT

 351  CCCTTCATCT TTTTTGATCC AGCAACTTAC CATCACGCAT CAGCTCCATT

 401  ACCAATTGTG AAAGCTCTAA TCATATAGTC ATTCATATAG GTTATTTGAC

 451  ATGGGCCCTT CCCTTGAGGA AACCCATGTG ACTTTATTTT CTTCCTCTGG

 501  GCTGTTTAGG AGATGAAGTT ACTTGAATGA GAAAATATAT ATGGAGTTCT

 551  AGAAAGGATT GGTTTATATG TCTTGGAGGC TATTTCAAAA TTTATTTGGC

 601  CATATATTCT GAATACTACC TAGAACAGAT TAGCCATGGG CCCTNTGGGT

 651  TNTTCATAAG CCATTGTTCT GAANTTTTTT AGCTTTGTAA ATGAAAGGTT

 701  TATGGGATAG GAAGAGTNCT ATGAACGTGG GAGGAATTTG TAAATCCTAC

 751  CAATTTNTNC TATATAGCAT TAGCCCCCAC CTTTTANTAT TCTGCATCAA

 801  AAGTAAGATT GTGTCTAAAG AGAAAGGTNA GCTATCAAAA GGACTCCTAT

 851  AANATTCNTT GGAAACTTNT GGAANTGTCA AATTTNTTTG AGCTAATTNT

 901  TGGAGTTCCA AANTTTGTCT TNTNACAGTN AAGGGGGANC CCCATTCANA

 951  TTTNCCCCCC TNNNGANAAT GCTTGGGGGA AAAAACCTNC CAACCCCNTT

1001  GTGGGANGAA GTTTTTTTAA NNTTTTAAGG CTNGNNGAAA CNGGNTTTTA

1051  ATTTTTTGGG NCNANCGCCT NTCCCCGGTA CCAGGAAAAT CAGGACCTNT

1101  TTTTGGGGNN GNGCNCCNAC NGGGGGGNAA AANGGGAAAT TTCNTCANAA

1151  AAAATCTTTT CCGnnnnnng tgaagcatca gggcctgaac aagaacatca

1201  acctggactc tgcggatggg atgccagtgg caagcactga tcagtggagt

1251  gagctgaccg aggcagagcg actccaagag aaccttcaag cttatcgtac
```

Fig. 29

```
1301  cttccatgtt ttgttggcca ggctcttaga agaccagcag gtgcatttta

1351  ccccaaccga aggtgacttc catcaagcta tacataccct tcttctccaa

1401  gtcgctgcct ttgcatacca gatagaggag ttaatgatac tcctggaata

1451  caagatcccc cgcaatgagg ctgatgggat gcctattaat gttggagatg

1501  gtggtctctt tgagaagaag ctgtggggcc taaaggtgct gcaggagctt

1551  tcacagtgga cagtaaggtc catccatgac cttcgtttca tttcttctca

1601  tcagactggg atcccagcac gtgggagcca ttatattgct aacaacaaga

1651  aaatgtagnn nnngcggccT GCGCCGTCTT TCCCGACGTT AAAGGGATGA

1701  AACCACAAGA CTTACCTTCG CTCGGAAGTA AAACGACAAA CACACACAGT

1751  TTTGCCCGTT TTCATGAGAA ATGGGACGTC TGCGCACGAA ACGCGCCGTC

1801  GCTTGAGGAG GACTTGTACA AACACGATCT ATGCAGGTTT CCCCAACTGA

1851  CACAAACCGT GCAACTTGAA ACTCCGCCTG GTCTTTCCAG GTCTAGAGGG

1901  GTAACATTTT GTACTGTGTT TGACTCCACG CTCGATCCAC TAGCGAGTGT

1951  TAGTAGCGGT ACTGCTGTCT CGTAGCGGAG CATGTTGGCC GTGGGAACAC

2001  CTCCTTGGTA ACAAGGACCC ACGGGCCGA AGCCATGTC CTAACGGACC

2051  CAACATGTGT GCAACCCCAG CACGGCAGCT TTACTGTGAA ACCCACTTCA

2101  AGGTGACATT GATACTGGTA CTCAAACACT GGTGACAGGC TAAGGATGCC

2151  CTTCAGGTAC CCCGAGGTAA CAAGCGACAC TCGGGATCTG AGAAGGGGAC

2201  TGGGACTTCT TTAAAGTGCC CAGTTTAAAA AGCTTCTACG CCTGAATAGG

2251  TGACCGGAGG CCGGCACCTT TCCTTTTATA ACCACTGAAC ACATGGAAGA

2301  CGCCAAAAAC ATAAAGAAAG GCCCGGCGCC ATTCTATCCT CTAGAGGATG

2351  GAACCGCTGG AGAGCAACTG CATAAGGCTA TGAAGAGATA CGCCCTGGTT

2401  CCTGGAACAA TTGCTTTTAC AGATGCACAT ATCGAGGTGA ACATCACGTA

2451  CGCGGAATAC TTCGAAATGT CCGTTCGGTT GGCAGAAGCT ATGAAACGAT

2501  ATGGGCTGAA TACAAATCAC AGAATCGTCG TATGCAGTGA AAACTCTCTT

2551  CAATTCTTTA TGCCGGTGTT GGGCGCGTTA TTTATCGGAG TTGCAGTTGC

2601  GCCCGCGAAC GACATTTATA ATGAACGTGA ATTGCTCAAC AGTATGAACA

2651  TTTCGCAGCC TACCGTAGTG TTTGTTTCCA AAAAGGGGTT GCAAAAAATT
```

Fig. 20

```
2701  TTGAACGTGC AAAAAAAATT ACCAATAATC CAGAAAATTA TTATCATGGA

2751  TTCTAAAACG GATTACCAGG GATTTCAGTC GATGTACACG TTCGTCACAT

2801  CTCATCTACC TCCCGGTTTT AATGAATACG ATTTTGTACC AGAGTCCTTT

2851  GATCGTGACA AAACAATTGC ACTGATAATG AATTCCTCTG GATCTACTGG

2901  GTTACCTAAG GGTGTGGCCC TTCCGCATAG AACTGCCTGC GTCAGATTCT

2951  CGCATGCCAG AGATCCTATT TTTGGCAATC AAATCATTCC GGATACTGCG

3001  ATTTTAAGTG TTGTTCCATT CCATCACGGT TTTGGAATGT TTACTACACT

3051  CGGATATTTG ATATGTGGAT TTCGAGTCGT CTTAATGTAT AGATTTGAAG

3101  AAGAGCTGTT TTTACGATCC CTTCAGGATT ACAAAATTCA AAGTGCGTTG

3151  CTAGTACCAA CCCTATTTTC ATTCTTCGCC AAAAGCACTC TGATTGACAA

3201  ATACGATTTA TCTAATTTAC ACGAAATTGC TTCTGGGGGC GCACCTCTTT

3251  CGAAAGAAGT CGGGGAAGCG GTTGCAAAAC GCTTCCATCT TCCAGGGATA

3301  CGACAAGGAT ATGGGCTCAC TGAGACTACA TCAGCTATTC TGATTACACC

3351  CGAGGGGGAT GATAAACCGG GCGCGGTCGG TAAAGTTGTT CCATTTTTTG

3401  AAGCGAAGGT TGTGGATCTG GATACCGGGA AAACGCTGGG CGTTAATCAG

3451  AGAGGCGAAT TATGTGTCAG AGGACCTATG ATTATGTCCG GTTATGTAAA

3501  CAATCCGGAA GCGACCAACG CCTTGATTGA CAAGGATGGA TGGCTACATT

3551  CTGGAGACAT AGCTTACTGG GACGAAGACG AACACTTCTT CATAGTTGAC

3601  CGCTTGAAGT CTTTAATTAA ATACAAAGGA TATCAGGTGG CCCCCGCTGA

3651  ATTGGAATCG ATATTGTTAC AACACCCCAA CATCTTCGAC GCGGGCGTGG

3701  CAGGTCTTCC CGACGATGAC GCCGGTGAAC TTCCCGCCGC CGTTGTTGTT

3751  TTGGAGCACG GAAAGACGAT GACGGAAAAA GAGATCGTGG ATTACGTCGC

3801  CAGTCAAGTA ACAACCGCGA AAAAGTTGCG CGGAGGAGTT GTGTTTGTGG

3851  ACGAAGTACC GAAAGGTCTT ACCGGAAAAC TCGACGCAAG AAAAATCAGA

3901  GAGATCCTCA TAAAGGCCAA GAAGGGCGGA AAGTCCAAAT TGTAAAATGT

3951  AACTGTATTC AGCGATGACG AAATTCTTAG CTATTGTAAT GACTCTAGAG

4001  GATCTTTGTG AAGGAACCTT ACTTCTGTGG TGTGACATAA TTGGACAAAC

4051  TACCTACAGA GATTTAAAGC TCTAAGGTAA ATATAAAATT TTTAAGTGTA
```

Fig. 20

```
4101   TAATGTGTTA AACTACTGAT TCTAATTGTT TGTGTATTTT AGATTCCAAC

4151   CTATGGAACT GATGAATGGG AGCAGTGGTG GAATGCCTTT AATGAGGAAA

4201   ACCTGTTTTG CTCAGAAGAA ATGCCATCTA GTGATGATGA GGCTACTGCT

4251   GACTCTCAAC ATTCTACTCC TCCAAAAAAG AAGAGAAAGG TAGAAGACCC

4301   CAAGGACTTT CCTTCAGAAT TGCTAAGTTT TTTGAGTCAT GCTGTGTTTA

4351   GTAATAGAAC TCTTGCTTGC TTTGCTATTT ACACCACAAA GGAAAAAGCT

4401   GCACTGCTAT ACAAGAAAAT TATGGAAAAA TATTCTGTAA CCTTTATAAG

4451   TAGGCATAAC AGTTATAATC ATAACATACT GTTTTTTCTT ACTCCACACA

4501   GGCATAGAGT GTCTGCTATT AATAACTATG CTCAAAAATT GTGTACCTTT

4551   AGCTTTTTAA TTTGTAAAGG GGTTAATAAG GAATATTTGA TGTATAGTGC

4601   CTTGACTAGA GATCATAATC AGCCATACCA CATTTGTAGA GGTTTTACTT

4651   GCTTTAAAAA ACCTCCCACA CCTCCCCCTG AACCTGAAAC ATAAAATGAA

4701   TGCAATTGTT GTTGTTAACT TGTTTATTGC AGCTTATAAT GGTTACAAAT

4751   AAAGCAATAG CATCACAAAT TTCACAAATA AAGCATTTTT TTCACTGCAT

4801   TCTAGTTGTG GTTTGTCCAA ACTCATCAAT GTATCTTATC ATGTCTGGAT

4851   CCCCGGGTCC CTATAGTGAG TCGTATTAGC TTGGCGTAAT CATGGTCATA

4901   GCTGTTTCCT GTGTGAAATT GTTATCCGCT CACAATTCCA CACAACATAC

4951   GAGCCGGAAG CATAAAGTGT AAAGCCTGGG GTGCCTAATG AGTGAGCTAA

5001   CTCACATTAA TTGCGTTGCG CTCACTGCCC GCTTTCCAGT CGGGAAACCT

5051   GTCGTGCCAG CTGCATTAAT GAATCGGCCA ACGCGCGGGG AGAGGCGGTT

5101   TGCGTATTGG GCGCTCTTCC GCTTCCTCGC TCACTGACTC GCTGCGCTCG

5151   GTCGTTCGGC TGCGGCGAGC GGTATCAGCT CACTCAAAGG CGGTAATACG

5201   GTTATCCACA GAATCAGGGG ATAACGCAGG AAAGAACATG TGAGCAAAAG

5251   GCCAGCAAAA GGCCAGGAAC CGTAAAAAGG CCGCGTTGCT GGCGTTTTTC

5301   CATAGGCTCC GCCCCCCTGA CGAGCATCAC AAAAATCGAC GCTCAAGTCA

5351   GAGGTGGCGA AACCCGACAG GACTATAAAG ATACCAGGCG TTTCCCCCTG

5401   GAAGCTCCCT CGTGCGCTCT CCTGTTCCGA CCCTGCCGCT TACCGGATAC

5451   CTGTCCGCCT TTCTCCCTTC GGGAAGCGTG GCGCTTTCTC AATGCTCACG
```

Fig. 20

```
5501   CTGTAGGTAT   CTCAGTTCGG   TGTAGGTCGT   TCGCTCCAAG   CTGGGCTGTG

5551   TGCACGAACC   CCCCGTTCAG   CCCGACCGCT   GCGCCTTATC   CGGTAACTAT

5601   CGTCTTGAGT   CCAACCCGGT   AAGACACGAC   TTATCGCCAC   TGGCAGCAGC

5651   CACTGGTAAC   AGGATTAGCA   GAGCGAGGTA   TGTAGGCGGT   GCTACAGAGT

5701   TCTTGAAGTG   GTGGCCTAAC   TACGGCTACA   CTAGAAGGAC   AGTATTTGGT

5751   ATCTGCGCTC   TGCTGAAGCC   AGTTACCTTC   GGAAAAAGAG   TTGGTAGCTC

5801   TTGATCCGGC   AAACAAACCA   CCGCTGGTAG   CGGTGGTTTT   TTTGTTTGCA

5851   AGCAGCAGAT   TACGCGCAGA   AAAAAAGGAT   CTCAAGAAGA   TCCTTTGATC

5901   TTTTCTACGG   GGTCTGACGC   TCAGTGGAAC   GAAAACTCAC   GTTAAGGGAT

5951   TTTGGTCATG   AGATTATCAA   AAAGGATCTT   CACCTAGATC   CTTTTAAATT

6001   AAAAATGAAG   TTTTAAATCA   ATCTAAAGTA   TATATGAGTA   AACTTGGTCT

6051   GACAGTTACC   AATGCTTAAT   CAGTGAGGCA   CCTATCTCAG   CGATCTGTCT

6101   ATTTCGTTCA   TCCATAGTTG   CCTGACTCCC   CGTCGTGTAG   ATAACTACGA

6151   TACGGGAGGG   CTTACCATCT   GGCCCCAGTG   CTGCAATGAT   ACCGCGAGAC

6201   CCACGCTCAC   CGGCTCCAGA   TTTATCAGCA   ATAAACCAGC   CAGCCGGAAG

6251   GGCCGAGCGC   AGAAGTGGTC   CTGCAACTTT   ATCCGCCTCC   ATCCAGTCTA

6301   TTAATTGTTG   CCGGGAAGCT   AGAGTAAGTA   GTTCGCCAGT   TAATAGTTTG

6351   CGCAACGTTG   TTGCCATTGC   TACAGGCATC   GTGGTGTCAC   GCTCGTCGTT

6401   TGGTATGGCT   TCATTCAGCT   CCGGTTCCCA   ACGATCAAGG   CGAGTTACAT

6451   GATCCCCCAT   GTTGTGCAAA   AAAGCGGTTA   GCTCCTTCGG   TCCTCCGATC

6501   GTTGTCAGAA   GTAAGTTGGC   CGCAGTGTTA   TCACTCATGG   TTATGGCAGC

6551   ACTGCATAAT   TCTCTTACTG   TCATGCCATC   CGTAAGATGC   TTTTCTGTGA

6601   CTGGTGAGTA   CTCAACCAAG   TCATTCTGAG   AATAGTGTAT   GCGGCGACCG

6651   AGTTGCTCTT   GCCCGGCGTC   AATACGGGAT   AATACCGCGC   CACATAGCAG

6701   AACTTTAAAA   GTGCTCATCA   TTGGAAAACG   TTCTTCGGGG   CGAAAACTCT

6751   CAAGGATCTT   ACCGCTGTTG   AGATCCAGTT   CGATGTAACC   CACTCGTGCA

6801   CCCAACTGAT   CTTCAGCATC   TTTTACTTTC   ACCAGCGTTT   CTGGGTGAGC

6851   AAAAACAGGA   AGGCAAAATG   CCGCAAAAAA   GGGAATAAGG   GCGACACGGA
```

Fig. 20

```
6901  AATGTTGAAT ACTCATACTC TTCCTTTTTC AATATTATTG AAGCATTTAT

6951  CAGGGTTATT GTCTCATGAG CGGATACATA TTTGAATGTA TTTAGAAAAA

7001  TAAACAAATA GGGGTTCCGC GCACATTTCC CCGAAAAGTG CCACCTGACG

7051  TCTAAGAAAC CATTATTATC ATGACATTAA CCTATAAAAA TAGGCGTATC

7101  ACGAGGCCCT TTCGTCTCGC GCGTTTCGGT GATGACGGTG AAAACCTCTG

7151  ACACATGCAG CTCCCGGAGA CGGTCACAGC TTGTCTGTAA GCGGATGCCG

7201  GGAGCAGACA AGCCCGTCAG GGCGCGTCAG CGGGTGTTGG CGGGTGTCGG

7251  GGCTGGCTTA ACTATGCGGC ATCAGAGCAG ATTGTACTGA GAGTGCACCA

7301  TATGCGGTGT GAAATACCGC ACAGATGCGT AAGGAGAAAA TACCGCATCA

7351  GGCGCCATTC GCCATTCAGG CTGCGCAACT GTTGGGAAGG GCGATCGGTG

7401  CGGGCCTCTT CGCTATTACG CCAGCTGGCG AAAGGGGGAT GTGCTGCAAG

7451  GCGATTAAGT TGGGTAACGC CAGGGTTTTC CCAGTCACGA CGTTGTAAAA

7501  CGACGGCCAG TGAATTTCGA CCTGCAGtcg acttttttta tatatacagg

7551  aggccgag
```

Fig. 20

JCVPshort-hgdnf Length: 6565 June 8, 1999 16:57 Type: N Check:

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   1   GCTAGCGATT TAGGTGACAC TATAGAATAG ATCCCCATGA AGTTATGGGA
  51   TGTCGTGGCT GTCTGCCTGG TGCTGCTCCA CACCGCGTCC GCCTTCCCGC
 101   TGCCCGCCGG TAAGAGGCCT CCCGAGGCGC CCGCCGAAGA CCGCTCCCTC
 151   GGCCGCCGCC GCGCGCCCTT CGCGCTGAGC AGTGACTCAA ATATGCCAGA
 201   GGATTATCCT GATCAGTTCG ATGATGTCAT GGATTTTATT CAAGCCACCA
 251   TTAAAAGACT GAAAAGGTCA CCAGATAAAC AAATGGCAGT GCTTCCTAGA
 301   AGAGAGCGGA ATCGGCAGGC TGCAGCTGCC AACCCAGAGA ATTCCAGAGG
 351   AAAAGGTCGG AGAGGCCAGA GGGGCAAAAA CCGGGGTTGT GTCTTAACTG
 401   CAATACATTT AAATGTCACT GACTTGGGTC TGGGCTATGA AACCAAGGAG
 451   GAACTGATTT TTAGGTACTG CAGCGGCTCT TGCGATGCAG CTGAGACAAC
 501   GTACGACAAA ATATTGAAAA ACTTATCCAG AAATAGAAGG CTGGTGAGTG
 551   ACAAAGTAGG GCAGGCATGT TGCAGACCCA TCGCCTTTGA TGATGACCTG
 601   TCGTTTTTAG ATGATAACCT GGTTTACCAT ATTCTAAGAA AGCATTCCGC
 651   TAAAAGGTGT GGATGTATCT GACTGGTGCG CCGTCTTTCC CGACGTTAAA
 701   GGGATGAAAC CACAAGACTT ACCTTCGCTC GGAAGTAAAA CGACAAACAC
 751   ACACAGTTTT GCCCGTTTTC ATGAGAAATG GGACGTCTGC GCACGAAACG
 801   CGCCGTCGCT TGAGGAGGAC TTGTACAAAC ACGATCTATG CAGGTTTCCC
 851   CAACTGACAC AAACCGTGCA ACTTGAAACT CCGCCTGGTC TTTCCAGGTC
 901   TAGAGGGGTA ACATTTTGTA CTGTGTTTGA CTCCACGCTC GATCCACTAG
 951   CGAGTGTTAG TAGCGGTACT GCTGTCTCGT AGCGGAGCAT GTTGGCCGTG
1001   GGAACACCTC CTTGGTAACA AGGACCCACG GGGCCGAAAG CCATGTCCTA
1051   ACGGACCCAA CATGTGTGCA ACCCCAGCAC GGCAGCTTTA CTGTGAAACC
1101   CACTTCAAGG TGACATTGAT ACTGGTACTC AAACACTGGT GACAGGCTAA
1151   GGATGCCCTT CAGGTACCCC GAGGTAACAA GCGACACTCG GGATCTGAGA
1201   AGGGGACTGG GACTTCTTTA AAGTGCCCAG TTTAAAAAGC TTCTACGCCT
1251   GAATAGGTGA CCGGAGGCCG GCACCTTTCC TTTTATAACC ACTGAACACA
1301   TGGAAGACGC CAAAAACATA AAGAAAGGCC CGGCGCCATT CTATCCTCTA
1351   GAGGATGGAA CCGCTGGAGA GCAACTGCAT AAGGCTATGA AGAGATACGC
1401   CCTGGTTCCT GGAACAATTG CTTTTACAGA TGCACATATC GAGGTGAACA
1451   TCACGTACGC GGAATACTTC GAAATGTCCG TTCGGTTGGC AGAAGCTATG
1501   AAACGATATG GGCTGAATAC AAATCACAGA ATCGTCGTAT GCAGTGAAAA
1551   CTCTCTTCAA TTCTTTATGC CGGTGTTGGG CGCGTTATTT ATCGGAGTTG
1601   CAGTTGCGCC CGCGAACGAC ATTTATAATG AACGTGAATT GCTCAACAGT
1651   ATGAACATTT CGCAGCCTAC CGTAGTGTTT GTTTCCAAAA AGGGGTTGCA
1701   AAAAATTTTG AACGTGCAAA AAAAATTACC AATAATCCAG AAAATTATTA
1751   TCATGGATTC TAAAACGGAT TACCAGGGAT TTCAGTCGAT GTACACGTTC
1801   GTCACATCTC ATCTACCTCC CGGTTTTAAT GAATACGATT TTGTACCAGA
1851   GTCCTTTGAT CGTGACAAAA CAATTGCACT GATAATGAAT TCCTCTGGAT
1901   CTACTGGGTT ACCTAAGGGT GTGGCCCTTC CGCATAGAAC TGCCTGCGTC
1951   AGATTCTCGC ATGCCAGAGA TCCTATTTTT GGCAATCAAA TCATTCCGGA
2001   TACTGCGATT TTAAGTGTTG TTCCATTCCA TCACGGTTTT GGAATGTTTA
2051   CTACACTCGG ATATTTGATA TGTGGATTTC GAGTCGTCTT AATGTATAGA
2101   TTTGAAGAAG AGCTGTTTTT ACGATCCCTT CAGGATTACA AAATTCAAAG
2151   TGCGTTGCTA GTACCAACCC TATTTTCATT CTTCGCCAAA AGCACTCTGA
2201   TTGACAAATA CGATTTATCT AATTTACACG AAATTGCTTC TGGGGGCGCA
2251   CCTCTTTCGA AAGAAGTCGG GGAAGCGGTT GCAAAACGCT TCCATCTTCC
2301   AGGGATACGA CAAGGATATG GGCTCACTGA GACTACATCA GCTATTCTGA
2351   TTACACCCGA GGGGGATGAT AAACCGGGCG CGGTCGGTAA AGTTGTTCCA
2401   TTTTTTGAAG CGAAGGTTGT GGATCTGGAT ACCGGGAAAA CGCTGGGCGT
2451   TAATCAGAGA GGCGAATTAT GTGTCAGAGG ACCTATGATT ATGTCCGGTT
2501   ATGTAAACAA TCCGGAAGCG ACCAACGCCT TGATTGACAA GGATGGATGG
2551   CTACATTCTG AGACATAGC TTACTGGGAC GAAGACGAAC ACTTCTTCAT
2601   AGTTGACCGC TTGAAGTCTT TAATTAAATA CAAAGGATAT CAGGTGGCCC
2651   CCGCTGAATT GGAATCGATA TTGTTACAAC ACCCCAACAT CTTCGACGCG
2701   GGCGTGGCAG GTCTTCCCGA CGATGACGCC GGTGAACTTC CCGCCGCCGT
2751   TGTTGTTTTG GAGCACGGAA AGACGATGAC GGAAAAAGAG ATCGTGGATT
2801   ACGTCGCCAG TCAAGTAACA ACCGCGAAAA AGTTGCGCGG AGGAGTTGTG
2851   TTTGTGGACG AAGTACCGAA AGGTCTTACC GGAAAACTCG ACGCAAGAAA
2901   AATCAGAGAG ATCCTCATAA AGGCCAAGAA CGGCGGAAAG TCCAAATTGT
2951   AAAATGTAAC TGTATTCAGC GATGACGAAA TTCTTAGCTA TTGTAATGAC
3001   TCTAGAGGAT CTTTGTGAAG GAACCTTACT TCTGTGGTGT GACATAATTG
3051   GACAAACTAC CTACAGAGAT TTAAAGCTCT AAGGTAAATA TAAAATTTTT
3101   AAGTGTATAA TGTGTTAAAC TACTGATTCT AATTGTTTGT GTATTTTAGA
3151   TTCCAACCTA TGGAACTGAT GAATGGGAGC AGTGGTGGAA TGCCTTTAAT
```

Fig. 21

```
3201  GAGGAAAACC  TGTTTTGCTC  AGAAGAAATG  CCATCTAGTG  ATGATGAGGC
3251  TACTGCTGAC  TCTCAACATT  CTACTCCTCC  AAAAAAGAAG  AGAAAGGTAG
3301  AAGACCCCAA  GGACTTTCCT  TCAGAATTGC  TAAGTTTTTT  GAGTCATGCT
3351  GTGTTTAGTA  ATAGAACTCT  TGCTTGCTTT  GCTATTTACA  CCACAAAGGA
3401  AAAAGCTGCA  CTGCTATACA  AGAAAATTAT  GGAAAAATAT  TCTGTAACCT
3451  TTATAAGTAG  GCATAACAGT  TATAATCATA  ACATACTGTT  TTTTCTTACT
3501  CCACACAGGC  ATAGAGTGTC  TGCTATTAAT  AACTATGCTC  AAAAATTGTG
3551  TACCTTTAGC  TTTTTAATTT  GTAAAGGGGT  TAATAAGGAA  TATTTGATGT
3601  ATAGTGCCTT  GACTAGAGAT  CATAATCAGC  CATACCACAT  TTGTAGAGGT
3651  TTTACTTGCT  TTAAAAAACC  TCCCACACCT  CCCCCTGAAC  CTGAAACATA
3701  AAATGAATGC  AATTGTTGTT  GTTAACTTGT  TTATTGCAGC  TTATAATGGT
3751  TACAAATAAA  GCAATAGCAT  CACAAATTTC  ACAAATAAAG  CATTTTTTTC
3801  ACTGCATTCT  AGTTGTGGTT  TGTCCAAACT  CATCAATGTA  TCTTATCATG
3851  TCTGGATCCC  CGGGTCCCTA  TAGTGAGTCG  TATTAGCTTG  GCGTAATCAT
3901  GGTCATAGCT  GTTTCCTGTG  TGAAATTGTT  ATCCGCTCAC  AATTCCACAC
3951  AACATACGAG  CCGGAAGCAT  AAAGTGTAAA  GCCTGGGGTG  CCTAATGAGT
4001  GAGCTAACTC  ACATTAATTG  CGTTGCGCTC  ACTGCCCGCT  TTCCAGTCGG
4051  GAAACCTGTC  GTGCCAGCTG  CATTAATGAA  TCGGCCAACG  CGCGGGGAGA
4101  GGCGGTTTGC  GTATTGGGCG  CTCTTCCGCT  TCCTCGCTCA  CTGACTCGCT
4151  GCGCTCGGTC  GTTCGGCTGC  GGCGAGCGGT  ATCAGCTCAC  TCAAAGGCGG
4201  TAATACGGTT  ATCCACAGAA  TCAGGGGATA  ACGCAGGAAA  GAACATGTGA
4251  GCAAAAGGCC  AGCAAAAGGC  CAGGAACCGT  AAAAAGGCCG  CGTTGCTGGC
4301  GTTTTTCCAT  AGGCTCCGCC  CCCCTGACGA  GCATCACAAA  AATCGACGCT
4351  CAAGTCAGAG  GTGGCGAAAC  CCGACAGGAC  TATAAAGATA  CCAGGCGTTT
4401  CCCCCTGGAA  GCTCCCTCGT  GCGCTCTCCT  GTTCCGACCC  TGCCGCTTAC
4451  CGGATACCTG  TCCGCCTTTC  TCCCTTCGGG  AAGCGTGGCG  CTTTCTCAAT
4501  GCTCACGCTG  TAGGTATCTC  AGTTCGGTGT  AGGTCGTTCG  CTCCAAGCTG
4551  GGCTGTGTGC  ACGAACCCCC  CGTTCAGCCC  GACCGCTGCG  CCTTATCCGG
4601  TAACTATCGT  CTTGAGTCCA  ACCCGGTAAG  ACACGACTTA  TCGCCACTGG
4651  CAGCAGCCAC  TGGTAACAGG  ATTAGCAGAG  CGAGGTATGT  AGGCGGTGCT
4701  ACAGAGTTCT  TGAAGTGGTG  GCCTAACTAC  GGCTACACTA  GAAGGACAGT
4751  ATTTGGTATC  TGCGCTCTGC  TGAAGCCAGT  TACCTTCGGA  AAAAGAGTTG
4801  GTAGCTCTTG  ATCCGGCAAA  CAAACCACCG  CTGGTAGCGG  TGGTTTTTTT
4851  GTTTGCAAGC  AGCAGATTAC  GCGCAGAAAA  AAAGGATCTC  AAGAAGATCC
4901  TTTGATCTTT  TCTACGGGGT  CTGACGCTCA  GTGGAACGAA  AACTCACGTT
4951  AAGGGATTTT  GGTCATGAGA  TTATCAAAAA  GGATCTTCAC  CTAGATCCTT
5001  TTAAATTAAA  AATGAAGTTT  TAAATCAATC  TAAAGTATAT  ATGAGTAAAC
5051  TTGGTCTGAC  AGTTACCAAT  GCTTAATCAG  TGAGGCACCT  ATCTCAGCGA
5101  TCTGTCTATT  TCGTTCATCC  ATAGTTGCCT  GACTCCCCGT  CGTGTAGATA
5151  ACTACGATAC  GGGAGGGCTT  ACCATCTGGC  CCCAGTGCTG  CAATGATACC
5201  GCGAGACCCA  CGCTCACCGG  CTCCAGATTT  ATCAGCAATA  AACCAGCCAG
5251  CCGGAAGGGC  CGAGCGCAGA  AGTGGTCCTG  CAACTTTATC  CGCCTCCATC
5301  CAGTCTATTA  ATTGTTGCCG  GGAAGCTAGA  GTAAGTAGTT  CGCCAGTTAA
5351  TAGTTTGCGC  AACGTTGTTG  CCATTGCTAC  AGGCATCGTG  GTGTCACGCT
5401  CGTCGTTTGG  TATGGCTTCA  TTCAGCTCCG  GTTCCCAACG  ATCAAGGCGA
5451  GTTACATGAT  CCCCCATGTT  GTGCAAAAAA  GCGGTTAGCT  CCTTCGGTCC
5501  TCCGATCGTT  GTCAGAAGTA  AGTTGGCCGC  AGTGTTATCA  CTCATGGTTA
5551  TGGCAGCACT  GCATAATTCT  CTTACTGTCA  TGCCATCCGT  AAGATGCTTT
5601  TCTGTGACTG  GTGAGTACTG  CAACCAAGTCA  TTCTGAGAAT  AGTGTATGCG
5651  GCGACCGAGT  TGCTCTTGCC  CGGCGTCAAT  ACGGGATAAT  ACCGCGCCAC
5701  ATAGCAGAAC  TTTAAAAGTG  CTCATCATTG  GAAAACGTTC  TTCGGGGCGA
5751  AAACTCTCAA  GGATCTTACC  GCTGTTGAGA  TCCAGTTCGA  TGTAACCCAC
5801  TCGTGCACCC  AACTGATCTT  CAGCATCTTT  TACTTTCACC  AGCGTTTCTG
5851  GGTGAGCAAA  AACAGGAAGG  CAAAATGCCG  CAAAAAAGGG  AATAAGGGCG
5901  ACACGGAAAT  GTTGAATACT  CATACTCTTC  CTTTTTCAAT  ATTATTGAAG
5951  CATTTATCAG  GGTTATTGTC  TCATGAGCGG  ATACATATTT  GAATGTATTT
6001  AGAAAAATAA  ACAAATAGGG  GTTCCGCGCA  CATTTCCCCG  AAAAGTGCCA
6051  CCTGACGTCT  AAGAAACCAT  TATTATCATG  ACATTAACCT  ATAAAAATAG
6101  GCGTATCACG  AGGCCCTTTC  GTCTCGCGCG  TTTCGGTGAT  GACGGTGAAA
6151  ACCTCTGACA  CATGCAGCTC  CCGGAGACGG  TCACAGCTTG  TCTGTAAGCG
6201  GATGCCGGGA  GCAGACAAGC  CCGTCAGGGC  GCGTCAGCGG  GTGTTGGCGG
6251  GTGTCGGGGC  TGGCTTAACT  ATGCGGCATC  AGAGCAGATT  GTACTGAGAG
6301  TGCACCATAT  GCGGTGTGAA  ATACCGCACA  GATGCGTAAG  GAGAAAATAC
6351  CGCATCAGGC  GCCATTCGCC  ATTCAGGCTG  CGCAACTGTT  GGGAAGGGCG
6401  ATCGGTGCGG  GCCTCTTCGC  TATTACGCCA  GCTGGCGAAA  GGGGGATGTG
6451  CTGCAAGGCG  ATTAAGTTGG  GTAACGCCAG  GGTTTTCCCA  GTCACGACGT
6501  TGTAAAACGA  CGGCCAGTGA  ATTTCGACCT  GCAGtcgact  ttttttatat
```

Fig. 21

6551   atacaggagg ccgag

Fig. 21

pRetroOFF-E6E7 Length: 7840 June 10, 1999 12:21 Type: N Check: 5234

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   1  TCGAGTTTAC CACTCCCTAT CAGTGATAGA GAAAAGTGAA AGTCGAGTTT
  51  ACCACTCCCT ATCAGTGATA GAGAAAAGTG AAAGTCGAGT TTACCACTCC
 101  CTATCAGTGA TAGAGAAAGT GAAAGTCGAG TTTACCACTC CCTATCAGTG
 151  ATAGAGAAAA GTGAAAGTCG AGTTTACCAC TCCCTATCAG TGATAGAGAA
 201  AAGTGAAAGT CGAGTTTACC ACTCCCTATC AGTGATAGAG AAAAGTGAAG
 251  TCGAGTTTAC CACTCCCTAT CAGTGATAGA GAAAAGTGAA AGTCGAGCTC
 301  GGTACCCGGG TCGAGTAGGC GTGTACGGTG GAGGCCTAT ATAAGCAGAG
 351  CTCGTTTAGT GAACCGTCAG ATCGCCTGGA GACGCCATCC ACGCTGTTTT
 401  GACCTCCATA GAAGACACCG GGACCGATCC AGCCTgcggc cgcagatcta
 451  attcaccggt tagtataaaa gcagacattt tatgcaccaa aagagaactg
 501  caatgtttca ggacccacag gagcgaccca gaaagttacc acagttatgc
 551  acagagctgc aaacaactat acatgatata atattagaat gtgtgtactg
 601  caagcaacag ttactgcgac gtgaggtata tgactttgct tttcgggatt
 651  tatgcatagt atatagagat gggaatccat atgctgtatg tgataaatgt
 701  ttaaagtttt attctaaaat tagtgagtat agacattatt gttatagttt
 751  gtatggaaca acattagaac agcaatacaa caaaccgttg tgtgatttgt
 801  taattaggtg tattaactgt caaaagccac tgtgtcctga agaaaagcaa
 851  agacatctgg acaaaaagca aagattccat aatataaggg gtcggtggac
 901  cggtcgatgt atgtcttgtt gcagatcatc aagaacacgt agagaaaccc
 951  agctgtaatc atgcatggag atacacctac attgcatgaa tatatgttag
1001  atttgcaacc agagacaact gatctctact gttatgagca attaaatgac
1051  agctcagagg aggaggatga aatagatggt ccagctggac aagcagaacc
1101  ggacagagcc cattacaata ttgtaacctt ttgttgcaag tgtgactcta
1151  cgcttcggtt gtgcgtacaa agcacacacg tagacattcg tactttggaa
1201  gacctgttaa tgggcacact aggaattgtg tgccccatct gttctcagaa
1251  accataatct accatggctg atcctgcagg atccCCCGGG AACAACAACA
1301  ATTGCATTCA TTTTATGTTT CAGGTTCAGG GGGAGGTGTG GGAGGTTTTT
1351  TAAAGCAAGT AAAACCTCTA CAAATGTGGT ATGGCTGATT ATGATCCTGC
1401  AAGCCTCGTC GTCTGGCCGG ACCACGCTAT CTGTGCAAGG TCCCCGGACG
1451  CGCGCTCCAT GAGCAGAGCG TCGCGCCCCC TACCCACCGT ACTCGTCAAT
1501  TCCAAGGGCA TCGGTAAACA GAGCGCCGTA GGGGGCGGAG TCGTGGGGGG
1551  TAAATCCCGG ACCCGGGGAA TCCCCGTCCC CCAACATGTC CAGATCGAAA
1601  TCGTCTAGCG CGTCGGCATG CGCCATCGCC ACGTCCTCGC CGTATAAGTG
1651  GAGCTCGTCC CCCAGGCTGA CATCGGTCGG GGGGGCCGTC GACAGTCTGC
1701  GCGTGTGTCC GCGGGGAGAA AGGACAGGCG CGGAGCCGCC AGCCCCGCCT
1751  CTTCGGGGGC GTCGTCGTCC GGGAGATCGA GCAGGCCCTC GATGGTAGAC
1801  CCGTAATTGT TTTTCGTACG CGCGCGGCTG TACGCGGACC CACTTTCACA
1851  TTTAAGTTGT TTTTCTAATC CGCATATGAT CAATTCAAGG CCGAATAAGA
1901  AGGCTGGCTC TGCACCTTGG TGATCAAATA ATTCGATAGC TTGTCGTAAT
1951  AATGGCGGCA TACTATCAGT AGTAGGTGTT TCCCTTTCTT CTTTAGCGAC
2001  TTGATGCTCT TGATCTTCCA ATACGCAACC TAAAGTAAAA TGCCCCACAG
2051  CGCTGAGTGC ATATAATGCA TTCTCTAGTA AAAAACCTTG TTGGCATAAA
2101  AAGGCTAATT GATTTTCGAG AGTTTCATAC TGTTTTTCTG TAGGCCGTGT
2151  ACCTAAATGT ACTTTTGCTC CATCGCGATG ACTTAGTAAA GCACATCTAA
2201  AACTTTTAGC GTTATTACGT AAAAAATCTT GCCAGCTTTC CCCTTCTAAA
2251  GGGCAAAAGT GAGTATGGTG CCTATCTAAC ATCTCAATGG CTAAGGCGTC
2301  GAGCAAAGCC CGCTTATTTT TTACATGCCA ATACAATGTA GGCTGCTCTA
2351  CACCTAGCTT CTGGGCGAGT TTACGGGTTG TTAAACCTTC GATTCCGACC
2401  TCATTAAGCA GCTCTAATGC GCTGTTAATC ACTTTACTTT TATCTAATCT
2451  AGACATGGTG GAAGCTTTTT GCAAAGCCT AGGCCTCCAA AAAAGCCTCC
2501  TCACTACTTC TGGAATAGCT CAGAGGCCGA GGCGGCCTCG GCCTCTGCAT
2551  AAATAAAAAA AATTAGTCAG CCATGGGGCG GAGAATGGGC GGAACTGGGC
2601  GGAGTTAGGG GCGGGATGGG CGGAGTTAGG GGCGGGACTA TGGTTGCTGA
2651  CTAATTGAGA TGCATGCTTT GCATACTTCT GCCTGCTGGG GAGCCTGGGG
2701  ACTTTCCACA CCTGGTTGCT GACTAATTGA GATGCATGCT TTGCATACTT
2751  CTGCCTGCTG GGGAGCCTGG GGACTTTCCA CACCCTAACT GACACACATT
2801  CCACAGGTCG ACTAGATCGA ATTCTCAATT GTTTTACGCG GCCCGATGCA
2851  TGGGGTCGTG CGCTCCTTTC GGTCGGGCGC TGCGGGTCGT GGGGCGGGCG
2901  TCAGGCACCC CCCTTCCGCG TCATGCACCA GGTCGCGCGG TCCTTCGGGC
2951  ACTCGACGTC GGCGGTGACG GTGAAGCCGA GCCGCTCGTA GAAGGGGAGG
3001  TTGCGGGGGC CGGAGGTCTC CAGGAAGGCG GGCACCCCGG CGCGCTCGGC
3051  CGCCTCCACT CCGGGGAGCA CGACGGCGCT GCCCAGACCC TTGCCCTGGT
3101  GGTCGGGCGA GACGCCGACG GTGGCCAGGA ACCACGCGGG CTCCTTGGGC
3151  CGGTGCGGCG CCAGGAGGCC TTCCATCTGT TGCTGCGCGG CCAGCCGGGA
```

Fig. 22

```
3201    ACCGCTCAAC  TCGGCCATGC  GCGGGCCGAT  CTCGGCGAAC  ACCGCCCCCG
3251    CTTCGACGCT  CTCCGGCGTG  GTCCAGACCG  CCACCGCGGC  GCCGTCGTCC
3301    GCGACCCACA  CCTTGCCGAT  GTCGAGCCCG  ACGCGCGTGA  GGAAGAGTTC
3351    TTGCAGCTCG  GTGACCCGCT  CGATGTGGCG  GTCCGGATCG  ACGGTGTGGC
3401    GCGTGGCGGG  GTAGTCGGCG  AACGCGGCGG  CGAGGGTGCG  TACGGCCCTG
3451    GGGACGTCGT  CGCGGGTGGC  GAGGCGCACC  GTGGGCTTGT  ACTCGGTCAT
3501    GGTAAGCTGA  TCCGGCCGGC  GCCTAGAGAA  GGAGTGAGGG  CTGGATAAAG
3551    GGAGGATTGA  GGCGGGGTCG  AAAGAGGAGG  TTCAAGGGGG  AGAGACGGCG
3601    CGGATGGAAG  AAGAGGAGGC  GGAGGCTTAG  GGTGTACAAA  GGGCTTGACC
3651    CAGGGAGGGG  GGTCAAAAGC  CAAGGCTTCC  CAGGTCACGA  TGTAGGGGAC
3701    CTGGTCTGGG  TGTCCATGCG  GGCCAGGTGA  AAAGACCTTG  ATCTTAACCT
3751    GGGTGATGAG  GTCTCGGTTA  AAGGTGCCGT  CTCGCGGCCA  TCCGACGTTA
3801    AAGGTTGGCC  ATTCTGCAGA  GCAGAAGGTA  ACCCAACGTC  TCTTCTTGAC
3851    ATCTACCGAC  TGGTTGTGAG  CGAGCCGCTC  GACATCTTTC  CAGTGATCTA
3901    AGGTCAAACT  TAAGGGAGTG  GTAACAGTCT  GGCCCTAATT  TTCAGACAAA
3951    TACAGAAACA  CAGTCAGCAC  GAGACACAC   AGAACGATGC  TGCAGCAGAC
4001    AAGACGCGCG  GCTTCGGTTC  CAAACCGAAA  GCAAAAATTC  AGACGGAGGC
4051    GGGAACTGTT  TTAGGTTCTC  GTCTCCTACC  AGAACCACAT  ATCCTGACGG
4101    GGTCGGATTC  CACATCGACT  CCCTTCCTCA  GGTCGGGCCA  CAAAAACGGC
4151    CCCCAAAGTC  CCTGGGACGT  CTCCCAGGGT  TGCGGCCGGG  TGTTCAGAAC
4201    TCGTCAGTTC  CACCACGGGT  CCGCCAGATA  CAGAGCTAGT  TAGCTAACTA
4251    GTACCGACGC  AGGCGCATAA  AATCAGTCAT  AGACACTAGA  CAATCGGACA
4301    GACACAGATA  AGTTGCTGGC  CAGCTTACCT  CCCGGTGGTG  GGTCGGTGGT
4351    CCCTGGGCAG  GGGTCTCCCG  ATCCGGACG   AGCCCCCAAA  TGAAAGACCC
4401    CCGCTGACGG  GTAGTCAATC  ACTCAGAGGA  GACCTCCCA   AGGAACAGCG
4451    AGACCACAAG  TCGGATGCAA  CTGCAAGAGG  GTTTATTGGA  TACACGGGTA
4501    CCCGGGCGAC  TCAGTCAATC  GGAGGACTGG  CGCCCCGAGT  GAGGGGTTGT
4551    GGGCTCTTTT  ATTGAGCTCG  GGGAGCAGAA  GCGCGCGAAC  AGAAGCGAGA
4601    AGCGAACTGA  TTGGTTAGTT  CAAATAAGGC  ACAGGGTCAT  TTCAGGTCCT
4651    TGGGGCACCC  TGGAAACATC  TGATGGTTCT  CTAGAAACTG  CTGAGGGCTG
4701    GACCGCATCT  GGGGACCATC  TGTTCTTGGC  CCTGAGCCGG  GGCAGGAACT
4751    GCTTACCACA  GATATCCTGT  TTGGCCCATA  TTCAGCTGTT  CCATCTGTTC
4801    TTGGCCCTGA  GCCGGGGCAG  GAACTGCTTA  CCACAGATAT  CCTGTTTGGC
4851    CCATATTCAG  GCTGCAGGTG  GCACTTTTCG  GGGAAATGTG  CGCGGAACCC
4901    CTATTTGTTT  ATTTTTCTAA  ATACATTCAA  ATATGTATCC  GCTCATGAGA
4951    CAATAACCCT  GATAAATGCT  TCAATAATAT  TGAAAAAGGA  AGAGTATGAG
5001    TATTCAACAT  TTCCGTGTCG  CCCTTATTCC  CTTTTTTGCG  GCATTTTGCC
5051    TTCCTGTTTT  TGCTCACCCA  GAAACGCTGG  TGAAAGTAAA  AGATGCTGAA
5101    GATCAGTTGG  GTGCACGAGT  GGGTTACATC  GAACTGGATC  TCAACAGCGG
5151    TAAGATCCTT  GAGAGTTTTC  GCCCCGAAGA  ACGTTTTCCA  ATGATGAGCA
5201    CTTTTAAAGT  TCTGCTATGT  GGCGCGGTAT  TATCCCGTGT  TGACGCCGGG
5251    CAAGAGCAAC  TCGGTCGCCG  CATACACTAT  TCTCAGAATG  ACTTGGTTGA
5301    GTACTCACCA  GTCACAGAAA  AGCATCTTAC  GGATGGCATG  ACAGTAAGAG
5351    AATTATGCAG  TGCTGCCATA  ACCATGAGTG  ATAACACTGC  GGCCAACTTA
5401    CTTCTGACAA  CGATCGGAGG  ACCGAAGGAG  CTAACCGCTT  TTTTGCACAA
5451    CATGGGGGAT  CATGTAACTC  GCCTTGATCG  TTGGGAACCG  GAGCTGAATG
5501    AAGCCATACC  AAACGACGAG  CGTGACACCA  CGATGCCTGT  AGCAATGGCA
5551    ACAACGTTGC  GCAAACTATT  AACTGGCGAA  CTACTTACTC  TAGCTTCCCG
5601    GCAACAATTA  ATAGACTGGA  TGGAGGCGGA  TAAAGTTGCA  GGACCACTTC
5651    TGCGCTCGGC  CCTTCCGGCT  GGCTGGTTTA  TTGCTGATAA  ATCTGGAGCC
5701    GGTGAGCGTG  GGTCTCGCGG  TATCATTGCA  GCACTGGGGC  CAGATGGTAA
5751    GCCCTCCCGT  ATCGTAGTTA  TCTACACGAC  GGGGAGTCAG  GCAACTATGG
5801    ATGAACGAAA  TAGACAGATC  GCTGAGATAG  GTGCCTCACT  GATTAAGCAT
5851    TGGTAACTGT  CAGACCAAGT  TTACTCATAT  ATACTTTAGA  TTGATTTGCG
5901    GCCGGCCGCA  AACTTCATTT  TTAATTTAAA  AGGATCTAGG  TGAAGATCCT
5951    TTTTGATAAT  CTCATGACCA  AAATCCCTTA  ACGTGAGTTT  TCGTTCCACT
6001    GAGCGTCAGA  CCCCGTAGAA  AAGATCAAAG  GATCTTCTTG  AGATCCTTTT
6051    TTTCTGCGCG  TAATCTGCTG  CTTGCAAACA  AAAAAACCAC  CGCTACCAGC
6101    GGTGGTTTGT  TTGCCGGATC  AAGAGCTACC  AACTCTTTTT  CCGAAGGTAA
6151    CTGGCTTCAG  CAGAGCGCAG  ATACCAAATA  CTGTCCTTCT  AGTGTAGCCG
6201    TAGTTAGGCC  ACCACTTCAA  GAACTCTGTA  GCACCGCCTA  CATACCTCGC
6251    TCTGCTAATC  CTGTTACCAG  TGGCTGCTGC  CAGTGGCGAT  AAGTCGTGTC
6301    TTACCGGGTT  GGACTCAAGA  CGATAGTTAC  CGGATAAGGC  GCAGCGGTCG
6351    GGCTGAACGG  GGGGTTCGTG  CACACAGCCC  AGCTTGGAGC  GAACGACCTA
6401    CACCGAACTG  AGATACCTAC  AGCGTGAGCT  ATGAGAAAGC  GCCACGCTTC
6451    CCGAAGGGAG  AAAGGCGGAC  AGGTATCCGG  TAAGCGGCAG  GGTCGGAACA
6501    GGAGAGCGCA  CGAGGGAGCT  TCCAGGGGGA  AACGCCTGGT  ATCTTTATAG
```

Fig. 22

```
6551  TCCTGTCGGG  TTTCGCCACC  TCTGACTTGA  GCGTCGATTT  TTGTGATGCT
6601  CGTCAGGGGG  GCGGAGCCTA  TGGAAAAACG  CCAGCAACGC  GGCCTTTTTA
6651  CGGTTCCTGG  CCTTTTGCTG  GCCTTTTGCT  CACATGTTCT  TTCCTGCGTT
6701  ATCCCCTGAT  TCTGTGGATA  ACCGTATTAC  CGCCTTTGAG  TGAGCTGATA
6751  CCGCTCGCCG  CAGCCGAACG  ACCGAGCGCA  GCGAGTCAGT  GAGCGAGGAA
6801  GCGGAAGAGC  GCCAATACGC  AAACCGCCTC  TCCCCGCGCG  TTGGCCGATT
6851  CATTAATGCA  ACTATGGCCA  TTTAATGTAA  ATACTTAAGA  AAAAAAACCA
6901  AATTAATTTT  GATACATGCT  GCATGTGAAG  ACCCCCGCTG  ACGGGTAGTC
6951  AATCACTCAG  AGGAGACCCT  CCCAAGGCAG  CGAGACCACA  AGTCGGAAAT
7001  GAAAGACCCC  CGCTGACGGG  TAGTCAATCA  CTCAGAGGAG  ACCCTCCCAA
7051  GGAACAGCGA  GACCACAAGT  CGGATGCAAC  TGCAAGAGGG  TTTATTGGAT
7101  ACACGGGTAC  CCGGGCGACT  CAGTCAATCG  GAGGACTGGC  GCCCCGAGTG
7151  AGGGGTTGTG  GGCTCTTTTA  TTGAGCTCGG  GGAGCAGAAG  CGCGCGAACA
7201  GAAGCGAGAA  GCGAACTGAT  TGGTTAGTTC  AAATAAGGCA  CAGGGTCATT
7251  TCAGGTCCTT  GGGGCACCCT  GGAAACATCT  GATGGTTCTC  TAGAAACTGC
7301  TGAGGGCTGG  ACCGCATCTG  GGGACCATCT  GTTCTTGGCC  CTGAGCCGGG
7351  GCAGGAACTG  CTTACCACAG  ATATCCTGTT  TGGCCCATAT  TCAGCTGTTC
7401  CATCTGTTCT  TGGCCCTGAG  CCGGGGCAGG  AACTGCTTAC  CACAGATATC
7451  CTGTTTGGCC  CATATTCAGC  TGTTCCATCT  GTTCCTGACC  TTGATCTGAA
7501  CTTCTCTATT  CTCAGTTATG  TATTTTTCCA  TGCCTTGCAA  AATGGCGTTA
7551  CTTAAGCTAG  CAGATCTGCT  AGCTTGCCAA  ACCTACAGGT  GGGGTCTTTC
7601  ATTCCCCCCT  TTTTCTGGAG  ACTAAATAAA  ATCTTTTATT  TTATGCGCAC
7651  ATTTCCCCGA  AAAGTGCCAC  CTGACGTCTA  AGAAACCATT  ATTATCATGA
7701  CATTAACCTA  TAAAAATAGG  CGTATCACGA  GGCCCTTTCG  TCCGCACATT
7751  TCCCCGAAAA  GTGCCACCTG  ACGTCTAAGA  AACCATTATT  ATCATGACAT
7801  TAACCTATAA  AAATAGGCGT  ATCACGAGGC  CCTTTCGTCC
```

Fig. 22

pRetroOFF-019tsa58   Length: 8852

```
   1  TCGAGTTTAC CACTCCCTAT CAGTGATAGA GAAAAGTGAA AGTCGAGTTT
  51  ACCACTCCCT ATCAGTGATA GAGAAAAGTG AAAGTCGAGT TTACCACTCC
 101  CTATCAGTGA TAGAGAAAGT GAAAGTCGAG TTTACCACTC CCTATCAGTG
 151  ATAGAGAAAA GTGAAAGTCG AGTTTACCAC TCCCTATCAG TGATAGAGAA
 201  AAGTGAAAGT CGAGTTTACC ACTCCCTATC AGTGATAGAG AAAAGTGAAG
 251  TCGAGTTTAC CACTCCCTAT CAGTGATAGA GAAAAGTGAA AGTCGAGCTC
 301  GGTACCCGGG TCGAGTAGGC GTGTACGGTG GGAGGCCTAT ATAAGCAGAG
 351  CTCGTTTAGT GAACCGTCAG ATCGCCTGGA GACGCCATCC ACGCTGTTTT
 401  GACCTCCATA GAAGACACCG GGACCGATCC AGCCTGCGGC CGCTTAATTA
 451  AGTTTAAACG GATCCxxxxx xxxxxxatgc catctagtga tgatgaggct
 501  actgctgact ctcaacattc tactcctcca aaaaagaaga gaaaggtaga
 551  agaccccaag gactttcctt cagaattgct aagtttttg agtcatgctg
 601  tgtttagtaa tagaactctt gcttgctttg ctatttacac cacaaaggaa
 651  aaagctgcac tgctatacaa gaaaattatg gaaaaatatt ctgtaacctt
 701  tataagtagg cataacagtt ataatcataa catactgttt tttcttactc
 751  cacacaggca tagagtgtct gctattaata actatgctca aaaattgtgt
 801  acctttagct ttttaatttg taaaggggtt aataaggaat atttgatgta
 851  tagtgccttg actagagatc cattttctgt tattgaggaa agtttgccag
 901  gtgggttaaa ggagcatgat tttaatccag aagaagcaga ggaaactaaa
 951  caagtgtcct ggaagcttgt aacagagtat gcaatggaaa caaaatgtga
1001  tgatgtgttg ttattgcttg ggatgtactt ggaatttcag tacagttttg
1051  aaatgtgttt aaaatgtatt aaaaagaac agcccagcca ctataagtac
1101  catgaaaagc attatgcaaa tgctgctata tttgctgaca gcaaaaacca
1151  aaaaaccata tgccaacagg ctgttgatac tgtttagct aaaaagcagg
1201  ttgatagcct acaattaact agagaacaaa tgttaacaaa cagatttaat
1251  gatcttttgg ataggatgga tataatgttt ggttctacag gctctgctga
1301  catagaagaa tggatggctg gagttgcttg gctacactgt ttgttgccca
1351  aaatggattc agtggtgtat gactttttaa aatgcatggt gtacaacatt
1401  cctaaaaaaa gatactggct gtttaaagga ccaattgata gtggtaaaac
1451  tacattagca gctgctttgc ttgaattatg tgggggaaa gctttaaatg
1501  ttaatttgcc cttggacagg ctgaactttg agctaggagt agctattgac
1551  cagtttttag tagtttttga ggatgtaaag ggcactggag gggagtccag
1601  agatttgcct tcaggtcagg gaattaataa cctggacaat ttaagggatt
1651  atttggatgg cagtgttaag gtaaacttag aaaagaaca cctaaataaa
1701  agaactcaaa tatttccccc tggaatagtc accatgaatg agtacagtgt
1751  gcctaaaaca ctgcaggcca gatttgtaaa acaaatagat tttaggccca
1801  aagattattt aaagcattgc ctggaacgca gtgagttttt gttagaaaag
1851  agaataattc aaagtggcat tgctttgctt cttatgttaa tttggtacag
1901  acctgtggct gagtttgctc aaagtattca gagcagaatt gtggagtgga
1951  aagagagatt ggacaaagag tttagtttgt cagtgtatca aaaaatgaag
2001  tttaatgtgg ctatgggaat tggagtttta gattggctaa gaaacagtga
2051  tgatgatgat gaagacagcc aggaaaatgc tgataaaaat gaagatggtg
2101  gggagaagaa catggaagac tcagggcatg aaacaggcat tgattcacag
2151  tcccaaggct catttcaggc ccctcagtcc tcacagtctg ttcatgatca
2201  taatcagcca taccacattt gtagaggttt tacttgcttt aaaaaacctc
2251  ccacacctcc ccctgaacct gaaacataax xxxxxxxxxx ggatccCCCG
2301  GGAACAACAA CAATTGCATT CATTTTATGT TTCAGGTTCA GGGGGAGGTG
2351  TGGGAGGTTT TTTAAAGCAA GTAAAACCTC TACAAATGTG GTATGGCTGA
2401  TTATGATCCT GCAAGCCTCG TCGTCTGGCC GGACCACGCT ATCTGTGCAA
2451  GGTCCCCGGA CGCGCGCTCC ATGAGCAGAG CGTCGCGCCC CCTACCCACC
2501  GTACTCGTCA ATTCCAAGGG CATCGGTAAA CAGAGCGCCG TAGGGGGCGG
2551  AGTCGTGGGG GGTAAATCCC GGACCCGGGG AATCCCGTC CCCCAACATG
2601  TCCAGATCGA AATCGTCTAG CGCGTCGGCA CGCGTCCATCG CCACGTCCTC
2651  GCCGTATAAG TGGAGCTCGT CCCCCAGGCT GACATCGGTC GGGGGGGCCG
2701  TCGACAGTCT GCGCGTGTGT CCGCGGGGAG AAAGGACAGG CGCGGAGCCG
2751  CCAGCCCCGC CTCTTCGGGG GCGTCGTCGT CCGGGAGATC GAGCAGGCCC
2801  TCGATGGTAG ACCCGTAATT GTTTTTCGTA CGCGCGCGGC TGTACGCGGA
2851  CCCACTTTCA CATTTAAGTT GTTTTTCTAA TCCGCATATG ATCAATTCAA
2901  GGCCGAATAA GAAGGCTGGC TCTGCACCTT GGTGATCAAA TAATTCGATA
2951  GCTTGTCGTA ATAATGGCGG CATACTATCA GTAGTAGGTG TTTCCCTTTC
3001  TTCTTTAGCG ACTTGATGCT CTTGATCTTC CAATACGCAA CCTAAAGTAA
3051  AATGCCCCAC AGCGCTGAGT GCATATAATG CATTCTCTAG TGAAAAACCT
3101  TGTTGGCATA AAAAGGCTAA TTGATTTTCG AGAGTTTCAT ACTGTTTTTC
3151  TGTAGGCCGT GTACCTAAAT GTACTTTTGC TCCATCGCGA TGACTTAGTA
3201  AAGCACATCT AAAACTTTTA GCGTTATTAC GTAAAAAATC TTGCCAGCTT
```

Fig. 23

```
3251  TCCCCTTCTA  AAGGGCAAAA  GTGAGTATGG  TGCCTATCTA  ACATCTCAAT
3301  GGCTAAGGCG  TCGAGCAAAG  CCCGCTTATT  TTTTACATGC  CAATACAATG
3351  TAGGCTGCTC  TACACCTAGC  TTCTGGGCGA  GTTTACGGGT  TGTTAAACCT
3401  TCGATTCCGA  CCTCATTAAG  CAGCTCTAAT  GCGCTGTTAA  TCACTTTACT
3451  TTTATCTAAT  CTAGACATGG  TGGAAGCTTT  TTGCAAAAGC  CTAGGCCTCC
3501  AAAAAAGCCT  CCTCACTACT  TCTGGAATAG  CTCAGAGGCC  GAGGCGGCCT
3551  CGGCCTCTGC  ATAAATAAAA  AAAATTAGTC  AGCCATGGGG  CGGAGAATGG
3601  GCGGAACTGG  GCGGAGTTAG  GGGCGGGATG  GGCGGAGTTA  GGGGCGGGAC
3651  TATGGTTGCT  GACTAATTGA  GATGCATGCT  TTGCATACTT  CTGCCTGCTG
3701  GGGAGCCTGG  GGACTTTCCA  CACCTGGTTG  CTGACTAATT  GAGATGCATG
3751  CTTTGCATAC  TTCTGCCTGC  TGGGGAGCCT  GGGGACTTTC  CACACCCTAA
3801  CTGACACACA  TTCCACAGGT  CGACTAGATC  GAATTCTCAA  TTGTTTTACG
3851  CGGCCCGATG  CATGGGGTCG  TGCGCTCCTT  TCGGTCGGGC  GCTGCGGGTC
3901  GTGGGGCGGG  CGTCAGGCAC  CGGGCTTGCG  GGTCATGCAC  CAGGTGCGCG
3951  GGTCCTTCGG  GCACTCGACG  TCGGCGGTGA  CGGTGAAGCC  GAGCCGCTCG
4001  TAGAAGGGGA  GGTTGCGGGG  CGCGGAGGTC  TCCAGGAAGG  CGGGCACCCC
4051  GGCGCGCTCG  GCCGCCTCCA  CTCCGGGGAG  CACGACGGCG  CTGCCCAGAC
4101  CCTTGCCCTG  GTGGTCGGGC  GAGACGCCGA  CGGTGGCCAG  GAACCACGCG
4151  GGCTCCTTGG  GCCGGTGCGG  CGCCAGGAGG  CCTTCCATCT  GTTGCTGCGC
4201  GGCCAGCCGG  GAACCGCTCA  ACTCGGCCAT  GCGCGGGCCG  ATCTCGGCGA
4251  ACACCGCCCC  CGCTTCGACG  CTCTCCGGCG  TGGTCCAGAC  CGCCACCGCG
4301  GCGCCGTCGT  CCGCGACCCA  CACCTTGCCG  ATGTCGAGCC  CGACGCGCGT
4351  GAGGAAGAGT  TCTTGCAGCT  CGGTGACCCG  CTCGATGTGG  CGGTCCGGAT
4401  CGACGGTGTG  GCGCGTGGCG  GGGTAGTCGG  CGAACGCGGC  GGCGAGGGTG
4451  CGTACGGCCC  TGGGGACGTC  GTCGCGGGTG  GCGAGGCGCA  CCGTGGGCTT
4501  GTACTCGGTC  ATGGTAAGCT  GATCCGGCCG  GCGCCTAGAG  AAGGAGTGAG
4551  GGCTGGATAA  AGGGAGGATT  GAGGCGGGGT  CGAAAGAGGA  GGTTCAAGGG
4601  GGAGAGACGG  CGCGGATGGA  AGAAGAGGAG  GCGGAGGCTT  AGGGTGTACA
4651  AAGGGCTTGA  CCCAGGGAGG  GGGGTCAAAA  GCCAAGGCTT  CCCAGGTCAC
4701  GATGTAGGGG  ACCTGGTCTG  GGTGTCCATG  CGGGCCAGGT  GAAAAGACCT
4751  TGATCTTAAC  CTGGGTGATG  AGGTCTCGGT  TAAAGGTGCC  GTCTCGCGGC
4801  CATCCGACGT  TAAAGGTTGG  CCATTCTGCA  GAGCAGAAGG  TAACCCAACG
4851  TCTCTTCTTG  ACATCTACCG  ACTGGTTGTG  AGCGAGCCGC  TCGACATCTT
4901  TCCAGTGATC  TAAGGTCAAA  CTTAAGGGAG  TGGTAACAGT  CTGGCCCTAA
4951  TTTTCAGACA  AATACAGAAA  CACAGTCAGA  CAGAGACAAC  ACAGAACGAT
5001  GCTGCAGCAG  ACAAGACGCG  CGGCTTCGGT  TCCAAACCGA  AAGCAAAAAT
5051  TCAGACGGAG  GCGGGAACTG  TTTTAGGTTC  TCGTCTCCTA  CCAGAACCAC
5101  ATATCCTGAC  GGGGTCGGAT  TCCACATCGA  CTCCCTTCCT  CAGGTCGGGC
5151  CACAAAAACG  GCCCCCAAAG  TCCCTGGGAC  GTCTCCCAGG  GTTGCGGCCG
5201  GGTGTTCAGA  ACTCGTCAGT  TCCACCACGG  GTCCGCCAGA  TACAGAGCTA
5251  GTTAGCTAAC  TAGTACCGAC  GCAGGCGCAT  AAAATCAGTC  ATAGACACTA
5301  GACAATCGGA  CAGACACAGA  TAAGTTGCTG  GCCAGCTTAC  CTCCCGGTGG
5351  TGGGTCGGTG  GTCCCTGGGC  AGGGGTCTCC  CGATCCCGGA  CGAGCCCCCA
5401  AATGAAAGAC  CCCCGCTGAC  GGGTAGTCAA  TCACTCAGAG  GAGACCCTCC
5451  CAAGGAACAG  CGAGACCACA  AGTCGGATGC  AACTGCAAGA  GGGTTTATTG
5501  GATACACGGG  TACCCGGGCG  ACTCAGTCAA  TCGGAGGACT  GGCGCCCCGA
5551  GTGAGGGGTT  GTGGGCTCTT  TTATTGAGCT  CGGGGAGCAG  AAGCGCGCGA
5601  ACAGAAGCGA  GAAGCGAACT  GATTGGTTAG  TTCAAATAAG  GCACAGGGTC
5651  ATTTCAGGTC  CTTGGGGCAC  CCTGGAAACA  TCTGATGGTT  CTCTAGAAAC
5701  TGCTGAGGGC  TGGACCGCAT  CTGGGGACCA  TCTGTTCTTG  GCCCTGAGCC
5751  GGGGCAGGAA  CTGCTTACCA  CAGATATCCT  GTTTGGCCCA  TATTCAGCCG
5801  TTCCATCGTT  TCTTGGCCCT  GAGCCGGGGC  AGGAACTGCT  TACCACAGAT
5851  ATCCTGTTTG  GCCCATATTC  AGGCTGCAGG  TGGCACTTTT  CGGGGAAATG
5901  TGCGCGGAAC  CCCTATTTGT  TTATTTTTCT  AAATACATTC  AAATATGTAT
5951  CCGCTCATGA  GACAATAACC  CTGATAAATG  CTTCAATAAT  ATTGAAAAAG
6001  GAAGAGTATG  AGTATTCAAC  ATTTCCGTGT  CGCCCTATT  CCCTTTTTTG
6051  CGGCATTTTG  CCTTCCTGTT  TTTGCTCACC  CAGAAACGCT  GGTGAAAGTA
6101  AAAGATGCTG  AAGATCAGTT  GGGTGCACGA  GTGGGTTACA  TCGAACTGGA
6151  TCTCAACAGC  GGTAAGATCC  TTGAGAGTTT  TCGCCCCGAA  GAACGTTTTC
6201  CAATGATGAG  CACTTTTAAA  GTTCTGCTAT  GTGGCGCGGT  ATTATCCCGT
6251  GTTGACGCCG  GGCAAGAGCA  ACTCGGTCGC  CGCATACACT  ATTCTCAGAA
6301  TGACTTGGTT  GAGTACTCAC  CAGTCACAGA  AAAGCATCTT  ACGGATGGCA
6351  TGACAGTAAG  AGAATTATGC  AGTGCTGCCA  TAACCATGAG  TGATAACACT
6401  GCGGCCAACT  TACTTCTGAC  AACGATCGGA  GGACCGAAGG  AGCTAACCGC
6451  TTTTTTGCAC  AACATGGGGG  ATCATGTAAC  TCGCCTTGAT  CGTTGGGAAC
6501  CGGAGCTGAA  TGAAGCCATA  CCAAACGACG  AGCGTGACAC  CACGATGCCT
6551  GTAGCAATGG  CAACAACGTT  GCGCAAACTA  TTAACTGGCG  AACTACTTAC
```

Fig. 23

```
6601  TCTAGCTTCC  CGGCAACAAT  TAATAGACTG  GATGGAGGCG  GATAAAGTTG
6651  CAGGACCACT  TCTGCGCTCG  GCCCTTCCGG  CTGGCTGGTT  TATTGCTGAT
6701  AAATCTGGAG  CCGGTGAGCG  TGGGTCTCGC  GGTATCATTG  CAGCACTGGG
6751  GCCAGATGGT  AAGCCCTCCC  GTATCGTAGT  TATCTACACG  ACGGGGAGTC
6801  AGGCAACTAT  GGATGAACGA  AATAGACAGA  TCGCTGAGAT  AGGTGCCTCA
6851  CTGATTAAGC  ATTGGTAACT  GTCAGACCAA  GTTTACTCAT  ATATACTTTA
6901  GATTGATTTG  CGGCCGGCCG  CAAACTTCAT  TTTTAATTTA  AAAGGATCTA
6951  GGTGAAGATC  CTTTTTGATA  ATCTCATGAC  CAAAATCCCT  TAACGTGAGT
7001  TTTCGTTCCA  CTGAGCGTCA  GACCCCGTAG  AAAAGATCAA  AGGATCTTCT
7051  TGAGATCCTT  TTTTTCTGCG  CGTAATCTGC  TGCTTGCAAA  CAAAAAAACC
7101  ACCGCTACCA  GCGGTGGTTT  GTTTGCCGGA  TCAAGAGCTA  CCAACTCTTT
7151  TTCCGAAGGT  AACTGGCTTC  AGCAGAGCGC  AGATACCAAA  TACTGTCCTT
7201  CTAGTGTAGC  CGTAGTTAGG  CCACCACTTC  AAGAACTCTG  TAGCACCGCC
7251  TACATACCTC  GCTCTGCTAA  TCCTGTTACC  AGTGGCTGCT  GCCAGTGGCG
7301  ATAAGTCGTG  TCTTACCGGG  TTGGACTCAA  GACGATAGTT  ACCGGATAAG
7351  GCGCAGCGGT  CGGGCTGAAC  GGGGGGTTCG  TGCACACAGC  CCAGCTTGGA
7401  GCGAACGACC  TACACCGAAC  TGAGATACCT  ACAGCGTGAG  CTATGAGAAA
7451  GCGCCACGCT  TCCCGAAGGG  AGAAAGGCGG  ACAGGTATCC  GGTAAGCGGC
7501  AGGGTCGGAA  CAGGAGAGCG  CACGAGGGAG  CTTCCAGGGG  GAAACGCCTG
7551  GTATCTTTAT  AGTCCTGTCG  GGTTTCGCCA  CCTCTGACTT  GAGCGTCGAT
7601  TTTTGTGATG  CTCGTCAGGG  GGGCGGAGCC  TATGGAAAAA  CGCCAGCAAC
7651  GCGGCCTTTT  TACGGTTCCT  GGCCTTTTGC  TGGCCTTTTG  CTCACATGTT
7701  CTTTCCTGCG  TTATCCCCTG  ATTCTGTGGA  TAACCGTATT  ACCGCCTTTG
7751  AGTGAGCTGA  TACCGCTCGC  CGCAGCCGAA  CGACCGAGCG  CAGCGAGTCA
7801  GTGAGCGAGG  AAGCGGAAGA  GCGCCAATAC  GCAAACCGCC  TCTCCCCGCG
7851  CGTTGGCCGA  TTCATTAATG  CAACTATGGC  CATTTAATGT  AAATACTTAA
7901  GAAAAAAAAC  CAAATTAATT  TTGATACATG  CTGCATGTGA  AGACCCCCGC
7951  TGACGGGTAG  TCAATCACTC  AGAGGAGACC  CTCCCAAGGC  AGCGAGACCA
8001  CAAGTCGGAA  ATGAAAGACC  CCCGCTGACG  GGTAGTCAAT  CACTCAGAGG
8051  AGACCCTCCC  AAGGAACAGC  GAGACCACAA  GTCGGATGCA  ACTGCAAGAG
8101  GGTTTATTGG  ATACACGGGT  ACCCGGGCGA  CTCAGTCAAT  CGGAGGACTG
8151  GCGCCCCGAG  TGAGGGGTTG  TGGGCTCTTT  TATTGAGCTC  GGAGGAGCAGA
8201  AGCGCGCGAA  CAGAAGCGAG  AAGCGAACTG  ATTGGTTAGT  TCAAATAAGG
8251  CACAGGGTCA  TTTCAGGTCC  TTGGGGCACC  CTGGAAACAT  CTGATGGTTC
8301  TCTAGAAACT  GCTGAGGGCT  GGACCGCATC  TGGGGACCAT  CTGTTCTTGG
8351  CCCTGAGCCG  GGGCAGGAAC  TGCTTACCAC  AGATATCCTG  TTTGGCCCAT
8401  ATTCAGCTGT  TCCATCTGTT  CTTGGCCCTG  AGCCGGGGCA  GGAACTGCTT
8451  ACCACAGATA  TCCTGTTTGG  CCCATATTCA  GCTGTTCCAT  CTGTTCCTGA
8501  CCTTGATCTG  AACTTCTCTA  TTCTCAGTTA  TGTATTTTTC  CATGCCTTGC
8551  AAAATGGCGT  TACTTAAGCT  AGCAGATCTG  CTAGCTTGCC  AAACCTACAG
8601  GTGGGGTCTT  TCATTCCCCC  CTTTTTCTGG  AGACTAAATA  AAATCTTTTA
8651  TTTTATCGCC  ACATTCCCCC  GAAAAGTGCC  ACCTGACGTC  TAAGAAACCA
8701  TTATTATCAT  GACATTAACC  TATAAAAATA  GGCGTATCAC  GAGGCCCTTT
8751  CGTCCGCACA  TTTCCCCGAA  AAGTGCCACC  TGACGTCTAA  GAAACCATTA
8801  TTATCATGAC  ATTAACCTAT  AAAAATAGGC  GTATCACGAG  GCCCTTTCGT
8851  CC
```

Fig. 23

puhd10-3-hIL3 Length: 3621

```
   1  ctcgagttta ccactcccta tcagtgatag agaaaagtga aagtcgagtt
  51  taccactccc tatcagtgat agagaaaagt gaaagtcgag tttaccactc
 101  cctatcagtg atagagaaaa gtgaaagtcg agtttaccac tccctatcag
 151  tgatagagaa aagtgaaagt cgagtttacc actccctatc agtgatagag
 201  aaaagtgaaa gtcgagttta ccactcccta tcagtgatag agaaaagtga
 251  aagtcgagtt taccactccc tatcagtgat agagaaaagt gaaagtcgag
 301  ctcggtaccc gggtcgagta ggcgtgtacg gtgggaggcc tatataagca
 351  gagctcgttt agtgaaccgt cagatcgcct ggagacgcca tccacgctgt
 401  tttgacctcc atagaagaca ccgggaccga tccagcctcc gcggccccga
 451  attaaacagt cgagctacgt caacgaaaaa taaaatccaa acatgagccg
 501  cctgcccgtc ctgctcctgc tccaactcct ggtccgcccc ggactccaag
 551  ctcccatgac ccagacaacg tccttgaaga caagctgggt taactgctct
 601  aacatgatcg atgaaattat aacacactta aagcagccac ctttgccttt
 651  gctggacttc aacaacctca atgggaaga ccaagacatt ctgatggaaa
 701  ataaccttcg aaggccaaac ctggaggcat tcaacagggc tgtcaagagt
 751  ttacagaacg catcagcaat tgagagcatt cttaaaaatc tcctgccatg
 801  tctgcccctg gccacggccg cacccacgcg acatccaatc catatcaagg
 851  acggtgactg gaatgaattc cggaggaaac tgacgttcta tctgaaaacc
 901  cttgagaatg cgcaggctca acagacgact ttgagcctcg cgatctttta
 951  gaactcgact ctagacatga taagatacat tgatgagttt ggacaaacca
1001  caactagaat gcagtgaaaa aaatgcttta tttgtgaaat ttgtgatgct
1051  attgctttat ttgtaaccat tataagctgc aataaacaag ttaacaacaa
1101  caattgcatt cattttatgt ttcaggttca ggggggaggtg tgggaggttt
1151  tttaaagcaa gtaaaacctc tacaaatgtg gtatggctga ttatgatcct
1201  gcaagcctcg tcgtctggcc ggaccacgct atctgtgcaa ggtccccgga
1251  cgcgcgctcc atgagcagag cgcccgccga ccgaggcaaga ctcgggcggc
1301  gccctgcccg tcccaccagg tcaacaggcg gtaaccggcc tcttcatcgg
1351  gaatgcgcgc gaccttcagc atcgccggca tgtcccctgg cggacgggaa
1401  gtatcagctc gaccaagctt ggcgagattt tcaggagcta aggaagctaa
1451  aatggagaaa aaaatcactg gatataccac cgttgatata tcccaatggc
1501  atcgtaaaga acattttgag gcatttcagt cagttgctca atgtacctat
1551  aaccagaccg ttcagctgca ttaatgaatc ggccaacgcg cggggagagg
1601  cggtttgcgt attgggcgct cttccgcttc ctcgctcact gactcgctgc
1651  gctcggtcgt tcggctgcgg cgagcggtat cagctcactc aaagtcggta
1701  atacggttat ccacagaatc aggggataac gcaggaaaga acatgtgagc
1751  aaaaggccag caaaaggcca ggaaccgtaa aaaggccgcg ttgctggcgt
1801  ttttccatag gctccgcccc cctgacgagc atcacaaaaa tcgacgctca
1851  agtcagaggt ggcgaaaccc gacaggacta taaagatacc aggcgtttcc
1901  ccctggaagc tccctcgtgc gctctcctgt tccgaccctg ccgcttaccg
1951  gatacctgtc cgcctttctc ccttcgggaa gcgtggcgct ttctcaatgc
2001  tcacgctgta ggtatctcag ttcggtgtag gtcgttcgct ccaagctggg
2051  ctgtgtgcac gaaccccccg ttcagcccga ccgctgcgcc ttatccggta
2101  actatcgtct tgagtccaac ccggtaagac acgacttatc gccactggaa
2151  gcagccactg gtaacaggat tagcagagcg aggtatgtag gcggtgctac
2201  agagttcttg aagtggtggc ctaactacgg ctacactaga aggacagtat
2251  ttggtatctg cgctctgctg aagccagtta ccttcggaaa aagagttggt
2301  agctcttgat ccggcaaaca aaccaccgct ggtagcggtg gttttttttgt
2351  ttgcaagcag cagattacgc gcagaaaaaa aggatctcaa gaagatcctt
2401  tgatctttc tacggggtct gacgctcagt ggaacgaaaa ctcacgttaa
2451  gggattttgg tcatgagatt atcaaaaagg atcttcacct agatcctttt
2501  aaattaaaaa tgaagtttta atcaatcta aagtatatat gagtaaactt
2551  ggtctgacag ttaccaatgc ttaatcagtg aggcacctat ctcagcgatc
2601  tgtctatttc gttcatccat agttgcctga ctccccgtcg tgtagataac
2651  tacgatacgg gagggcttac catctggccc cagtgctgca atgataccgc
2701  gagacccacg ctcaccggct ccagatttat cagcaataaa ccagccagcc
2751  ggaagggccg agcgcagaag tggtcctgca actttatccg cctccatcca
2801  gtctattaat tgttgccggg aagctagagt aagtagttcg ccagttaata
2851  gtttgcgcaa cgttgttgcc attgctacag gcatcgtgtg tcacgctcg
2901  tcgtttggta tggcttcatt cagctccggt tcccaacgat caaggcgagt
2951  tacatgatcc ccatgttgt gcaaaaagc ggttagctcc ttcggtcctc
3001  cgatcgttgt cagaagtaag ttggccgcag tgttatcact catggttatg
3051  gcagcactgc ataattctct tactgtcatg ccatccgtaa gatgctttc
3101  tgtgactggt gagtactcaa ccaagtcatt ctgagaatag tgtatgcggc
3151  gaccgagttg ctcttgcccg tcgtcaatac gggataatac cgcgccacat
3201  agcagaactt aaaaagtgct catcattgga aaacgttctt cggggcgaaa
```

Fig. 24

```
3251  actctcaagg atcttaccgc tgttgagatc cagttcgatg taacccactc
3301  gtgcacccaa ctgatcttca gcatcttta ctttcaccag cgtttctggg
3351  tgagcaaaaa caggaaggca aaatgccgca aaaaagggaa taagggcgac
3401  acggaaatgt tgaatactca tactcttcct ttttcaatat tattgaagca
3451  tttatcaggg ttattgtctc atgagcggat acatatttga atgtatttag
3501  aaaaataaac aaataggggt tccgcgcaca tttccccgaa aagtgccacc
3551  tgacgtctaa gaaaccatta ttatcatgac attaacctat aaaaataggc
3601  gtatcacgag gccctttcgt c
```

Fig. 24

pUHD10-3-hIL6
Length: 3752   June 22, 1999 10:32   Type: N   Check: 8139   ..

```
   1   ctcgagttta ccactcccta tcagtgatag agaaaagtga aagtcgagtt
  51   taccactccc tatcagtgat agagaaaagt gaaagtcgag tttaccactc
 101   cctatcagtg atagagaaaa gtgaaagtcg agtttaccac tccctatcag
 151   tgatagagaa aagtgaaagt cgagtttacc actccctatc agtgatagag
 201   aaaagtgaaa gtcgagttta ccactcccta tcagtgatag agaaaagtga
 251   aagtcgagtt taccactccc tatcagtgat agagaaaagt gaaagtcgag
 301   ctcggtaccc gggtcgagta ggcgtgtacg gtgggaggcc tatataagca
 351   gagctcgttt agtgaaccgt cagatcgcct ggagacgcca tccacgctgt
 401   tttgacctcc atagaagaca ccgggaccga tccagcctcc gcggtggcgg
 451   ccgctctaga actagtggat cccccagctt acctgccatg ccagtacccc
 501   caggagaaga ttccaaagat gtagccgccc cacacagaca gccactcacc
 551   tcttcagaac gaattgacaa acaaattcgg tacatcctcg acggcatctc
 601   agccctgaga aaggagacat gtaacaagag taacatgtgt gaaagcagca
 651   aagaggcact ggcagaaaac aacctgaacc ttccaaagat ggctgaaaaa
 701   gatggatgct tccaatctgg attcaatgag gagacttgcc tggtgaaaat
 751   catcactggt cttttggagt ttgaggtata cctagagtac ctccagaaca
 801   gatttgagag tagtgaggaa caagccagag ctgtccagat gagtacaaaa
 851   gtcctgatcc agttcctgca gaaaaaggca aagaatctag atgcaataac
 901   cacccctgac ccaaccacaa atgccagcct gctgacgaag ctgcaggcac
 951   agaaccagtg gctgcaggac atgacaactc atctcattct gcgcagcttt
1001   aaggagttcc tgcagtccag cctgagggct cttcggcaaa tgtagtaagg
1051   atccgaattc gagctcggta cccggggatc tctagagga tccagacatg
1101   ataagataca ttgatgagtt tggacaaacc acaactagaa tgcagtgaaa
1151   aaaatgcttt atttgtgaaa tttgtgatgc tattgcttta tttgtaacca
1201   ttataagctg caataaacaa gttaacaaca caattgcat tcattttatg
1251   tttcaggttc agggggaggt gtgggaggtt ttttaaagca agtaaaacct
1301   ctacaaatgt ggtatggctg attatgatcc tgcaagcctc gtcgtctggc
1351   cggaccacgc tatctgtgca aggtccccgg acgcgcgctc catgagcaga
1401   gcgcccgccg ccgaggcaag actcgggcgg cgccctgccc gtcccaccag
1451   gtcaacaggc ggtaaccgc ctcttcatcg ggaatgcgcg cgaccttcag
1501   catcgccggc atgtcccctg gcggacggga agtatcagct cgaccaagct
1551   tggcgagatt ttcaggagct aaggaagcta aaatggagaa aaaaatcact
1601   ggatatacca ccgttgatat atcccaatgg catcgtaaag aacattttga
1651   ggcatttcag tcagttgctc aatgtaccta taaccagacc gttcagctgc
1701   attaatgaat cggccaacgc gcggggagag gcggtttgcg tattgggcgc
1751   tcttccgctt cctcgctcac tgactcgctg cgctcggtcg ttcggctgc
1801   gcgagcggta tcagctcact caaagtcggt aatacggtta ccacagaat
1851   caggggataa cgcaggaaag aacatgtgag caaaaggcca gcaaaaggcc
1901   aggaaccgta aaaaggccgc gttgctggcg tttttccata ggctccgccc
1951   ccctgacgag catcacaaaa atcgacgctc aagtcagagg tggcgaaacc
2001   cgacaggact ataaagatac caggcgtttc cccctcgtg
2051   cgctctcctg ttccgaccct gccgcttacc ggatacctgt ccgcctttct
2101   cccttcggga agcgtggcgc tttctcaatg ctcacgctgt aggtatctca
2151   gttcggtgta ggtcgttcgc tccaagctgg gctgtgtgca cgaacccccc
2201   gttcagcccg accgctgcgc cttatccggt aactatcgtc ttgagtccaa
2251   cccggtaaga cacgacttat cgccactgga agcagccact ggtaacagga
2301   ttagcagagc gaggtatgta ggcggtgcta cagagttctt gaagtggtgg
2351   cctaactacg gctacactag aaggacagta tttggtatct gcgctctgct
2401   gaagccagtt accttcggaa aaagagttgg tagctcttga tccggcaaac
2451   aaaccaccgc tggtagcggt ggtttttttg tttgcaagca gcagattacg
2501   cgcagaaaaa aaggatctca agaagatcct ttgatctttt ctacggggtc
2551   tgacgctcag tggaacgaaa actcacgtta agggattttg gtcatgagat
2601   tatcaaaaag gatcttcacc tagatccttt taaattaaaa atgaagtttt
2651   aaatcaatct aaagtatata tgagtaaact tggtctgaca gttaccaatg
2701   cttaatcagt gaggcaccta tctcagcgat ctgtctattt cgttcatcca
2751   tagttgcctg actccccgtc gtgtagataa ctacgatacg gagggcttta
2801   ccatctggcc ccagtgctgc aatgataccg cgagacccac gctcaccggc
2851   tccagattta tcagcaataa accagccagc cggaagggcc gagcgcagaa
2901   gtggtcctgc aactttatcc gcctccatcc agtctattaa ttgttgccgg
2951   gaagctagag taagtagttc gccagttaat agtttgcgca acgttgttgc
3001   cattgctaca ggcatcgtgt ggtcacgctc gtcgtttggt atggcttcat
3051   tcagctccgg ttcccaacga tcaaggcgag ttacatgatc ccccatgttg
3101   tgcaaaaaag cggttagctc cttcggtcct ccgatcgttg tcagaagtaa
3151   gttggccgca gtgttatcac tcatggttat ggcagcactg cataattctc
```

Fig. 25

```
3201  ttactgtcat gccatccgta agatgctttt ctgtgactgg tgagtactca
3251  accaagtcat tctgagaata gtgtatgcgg cgaccgagtt gctcttgccc
3301  gtcgtcaata cgggataata ccgcgccaca tagcagaact ttaaaagtgc
3351  tcatcattgg aaaacgttct tcggggcgaa aactctcaag gatcttaccg
3401  ctgttgagat ccagttcgat gtaacccact cgtgcaccca actgatcttc
3451  agcatctttt actttcacca gcgtttctgg gtgagcaaaa acaggaaggc
3501  aaaatgccgc aaaaaaggga ataagggcga cacggaaatg ttgaatactc
3551  atactcttcc ttttcaata ttattgaagc atttatcagg gttattgtct
3601  catgagcgga tacatatttg aatgtattta gaaaaataaa caaatagggg
3651  ttccgcgcac atttccccga aaagtgccac ctgacgtcta agaaaccatt
3701  attatcatga cattaaccta taaaaatagg cgtatcacga ggccctttcg
3751  tc
```

Fig. 25

puhd10-3-tgf

```
     ctcgagtttaccactccctatcagtgatagagaaaagtgaaagtcgagtttaccactccc
   1 ---------+---------+---------+---------+---------+---------+  60

     tatcagtgatagagaaaagtgaaagtcgagtttaccactccctatcagtgatagagaaaa
  61 ---------+---------+---------+---------+---------+---------+ 120

     gtgaaagtcgagtttaccactccctatcagtgatagagaaaagtgaaagtcgagtttacc
 121 ---------+---------+---------+---------+---------+---------+ 180

     actccctatcagtgatagagaaaagtgaaagtcgagtttaccactccctatcagtgatag
 181 ---------+---------+---------+---------+---------+---------+ 240

     agaaaagtgaaagtcgagtttaccactccctatcagtgatagagaaaagtgaaagtcgag
 241 ---------+---------+---------+---------+---------+---------+ 300

     ctcggtacccgggtcgagtaggcgtgtacggtgggaggcctatataagcagagctcgttt
 301 ---------+---------+---------+---------+---------+---------+ 360

     agtgaaccgtcagatcgcctggagacgccatccacgctgttttgacctccatagaagaca
 361 ---------+---------+---------+---------+---------+---------+ 420

     ccgggaccgatccagcctccgcggccccgaattcctgcagcccATGCACTTGCAAAGGGC
 421 ---------+---------+---------+---------+---------+---------+ 480

     TCTGGTAGTCCTGGCCCTGCTGAACTTGGCCACAATCAGCCTCTCTCTGTCCACTTGCAC
 481 ---------+---------+---------+---------+---------+---------+ 540

     CACGTTGGACTTCGGCCACATCAAGAAGAAGAGGGTGGAAGCCATTAGGGGACAGATCTT
 541 ---------+---------+---------+---------+---------+---------+ 600

     GAGCAAGCTCAGGCTCACCAGCCCCCCTGAGCCATCGGTGATGACCCACGTCCCCTATCA
 601 ---------+---------+---------+---------+---------+---------+ 660

     GGTCCTGGCACTTTACAACAGCACCCGGGAGTTGCTGGAAGAGATGCACGGGGAGAGGGA
 661 ---------+---------+---------+---------+---------+---------+ 720

     GGAAGGCTGCACTCAGGAGACCTCGGAGTCTGAGTACTATGCCAAAGAGATCCATAAATT
 721 ---------+---------+---------+---------+---------+---------+ 780

     CGACATGATCCAGGGACTGGCGGAGCACAATGAACTGGCCGTCTGCCCCAAAGGAATTAC
 781 ---------+---------+---------+---------+---------+---------+ 840

     CTCTAAGGTTTTTCGTTTCAATGTGTCCTCAGTGGAGAAAAATGGAACCAATCTGTTCCG
 841 ---------+---------+---------+---------+---------+---------+ 900

     GGCAGAGTTCCGGGTCTTGCGGGTGCCCAACCCCAGCTCCAAGCGCACAGAGCAGAGAAT
 901 ---------+---------+---------+---------+---------+---------+ 960

     TGAGCTCTTCCAGATACTTCGACCGGATGAGCACATAGCCAAGCAGCGCTACATAGGTGG
 961 ---------+---------+---------+---------+---------+---------+1020

     CAAGAATCTGCCCACAAGGGGCACCGCTGAATGGCTGTCTTTCGATGTCACTGACACTGT
1021 ---------+---------+---------+---------+---------+---------+1080

     GCGCGAGTGGCTGTTGAGGAGAGAGTCCAACTTGGGTCTGGAAATCAGCATCCACTGTCC
1081 ---------+---------+---------+---------+---------+---------+1140

     ATGTCACACCTTTCAGCCCAATGGAGACATACTGGAAAATGTTCATGAGGTGATGGAAAT
1141 ---------+---------+---------+---------+---------+---------+1200

     CAAATTCAAAGGAGTGGACAATGAAGATGACCATGGCCGTGGAGACCTGGGGCGTCTCAA
1201 ---------+---------+---------+---------+---------+---------+1260

     GAAGCAAAAGGATCACCACAACCCACACCTGATCCTCATGATGATCCCCCCACACCGACT
1261 ---------+---------+---------+---------+---------+---------+1320
```

Fig. 26

```
     GGACAGCCCAGGCCAGGGCAGTCAGAGGAAGAAGAGGGCCCTGGACACCAATTACTGCTT
1321 --------+---------+---------+---------+---------+---------+ 1380

     CCGCAACCTGGAGGAGAACTGCTGTGTACGCCCCCTTTATATTGACTTCCGGCAGGATCT
1381 --------+---------+---------+---------+---------+---------+ 1440

     AGGCTGGAAATGGGTCCACGAACCTAAGGGTTACTATGCCAACTTCTGCTCAGGCCCTTG
1441 --------+---------+---------+---------+---------+---------+ 1500

     CCCATACCTCCGCAGCGCAGACACAACCCATAGCACGGTGCTTGGACTATACAACACCCT
1501 --------+---------+---------+---------+---------+---------+ 1560

     GAACCCAGAGGCGTCTGCCTCGCCATGCTGCGTCCCCCAGGACCTGGAGCCCCTGACCAT
1561 --------+---------+---------+---------+---------+---------+ 1620

     CTTGTACTATGTGGGCAGAACCCCCAAGGTGGAGCAGCTGTCCAACATGGTGGTGAAGTC
1621 --------+---------+---------+---------+---------+---------+ 1680

     GTGTAAGTGCAGCTGAggggggatccactagttctagaggatccagacatgataagataca
1681 --------+---------+---------+---------+---------+---------+ 1740

     ttgatgagtttggacaaaccacaactagaatgcagtgaaaaaaatgctttatttgtgaaa
1741 --------+---------+---------+---------+---------+---------+ 1800

     tttgtgatgctattgctttatttgtaaccattataagctgcaataaacaagttaacaaca
1801 --------+---------+---------+---------+---------+---------+ 1860

     acaattgcattcattttatgtttcaggttcaggggggaggtgtgggaggtttttttaaagca
1861 --------+---------+---------+---------+---------+---------+ 1920

     agtaaaacctctacaaatgtggtatggctgattatgatcctgcaagcctcgtcgtctggc
1921 --------+---------+---------+---------+---------+---------+ 1980

     cggaccacgctatctgtgcaaggtccccggacgcgcgctccatgagcagagcgcccgccg
1981 --------+---------+---------+---------+---------+---------+ 2040

     ccgaggcaagactcgggcggcgccctgcccgtcccaccaggtcaacaggcggtaaccggc
2041 --------+---------+---------+---------+---------+---------+ 2100

     ctcttcatcgggaatgcgcgcgaccttcagcatcgccggcatgtcccctggcggacggga
2101 --------+---------+---------+---------+---------+---------+ 2160

     agtatcagctcgaccaagcttggcgagattttcaggagctaaggaagctaaaatggagaa
2161 --------+---------+---------+---------+---------+---------+ 2220

     aaaaatcactggatataccaccgttgatatatcccaatggcatcgtaaagaacattttga
2221 --------+---------+---------+---------+---------+---------+ 2280

     ggcatttcagtcagttgctcaatgtacctataaccagaccgttcagctgcattaatgaat
2281 --------+---------+---------+---------+---------+---------+ 2340

     cggccaacgcgcggggagaggcggtttgcgtattgggcgctcttccgcttcctcgctcac
2341 --------+---------+---------+---------+---------+---------+ 2400

     tgactcgctgcgctcggtcgttcggctgcggcgagcggtatcagctcactcaaagtcggt
2401 --------+---------+---------+---------+---------+---------+ 2460

     aatacggttatccacagaatcaggggataacgcaggaaagaacatgtgagcaaaaggcca
2461 --------+---------+---------+---------+---------+---------+ 2520

     gcaaaaggccaggaaccgtaaaaaggccgcgttgctggcgtttttccataggctccgccc
2521 --------+---------+---------+---------+---------+---------+ 2580

     ccctgacgagcatcacaaaaatcgacgctcaagtcagaggtggcgaaacccgacaggact
2581 --------+---------+---------+---------+---------+---------+ 2640
```

Fig. 26

```
      ataaagataccaggcgtttcccccctggaagctccctcgtgcgctctcctgttccgaccct
2641  ---------+---------+---------+---------+---------+---------+ 2700

      gccgcttaccggatacctgtccgcctttctcccttcgggaagcgtggcgctttctcaatg
2701  ---------+---------+---------+---------+---------+---------+ 2760

      ctcacgctgtaggtatctcagttcggtgtaggtcgttcgctccaagctgggctgtgtgca
2761  ---------+---------+---------+---------+---------+---------+ 2820

      cgaaccccccgttcagcccgaccgctgcgccttatccggtaactatcgtcttgagtccaa
2821  ---------+---------+---------+---------+---------+---------+ 2880

      cccggtaagacacgacttatcgccactggaagcagccactggtaacaggattagcagagc
2881  ---------+---------+---------+---------+---------+---------+ 2940

      gaggtatgtaggcggtgctacagagttcttgaagtggtggcctaactacggctacactag
2941  ---------+---------+---------+---------+---------+---------+ 3000

      aaggacagtatttggtatctgcgctctgctgaagccagttaccttcggaaaaagagttgg
3001  ---------+---------+---------+---------+---------+---------+ 3060

      tagctcttgatccggcaaacaaaccaccgctggtagcggtggtttttttgtttgcaagca
3061  ---------+---------+---------+---------+---------+---------+ 3120

      gcagattacgcgcagaaaaaaaggatctcaagaagatcctttgatcttttctacggggtc
3121  ---------+---------+---------+---------+---------+---------+ 3180

      tgacgctcagtggaacgaaaactcacgttaagggattttggtcatgagattatcaaaaag
3181  ---------+---------+---------+---------+---------+---------+ 3240

      gatcttcacctagatccttttaaattaaaaatgaagtttttaaatcaatctaaagtatata
3241  ---------+---------+---------+---------+---------+---------+ 3300

      tgagtaaacttggtctgacagttaccaatgcttaatcagtgaggcacctatctcagcgat
3301  ---------+---------+---------+---------+---------+---------+ 3360

      ctgtctatttcgttcatccatagttgcctgactccccgtcgtgtagataactacgatacg
3361  ---------+---------+---------+---------+---------+---------+ 3420

      ggagggcttaccatctggccccagtgctgcaatgataccgcgagacccacgctcaccggc
3421  ---------+---------+---------+---------+---------+---------+ 3480

      tccagatttatcagcaataaaccagccagccggaagggccgagcgcagaagtggtcctgc
3481  ---------+---------+---------+---------+---------+---------+ 3540

      aactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagtagttc
3541  ---------+---------+---------+---------+---------+---------+ 3600

      gccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtgtggtcacgctc
3601  ---------+---------+---------+---------+---------+---------+ 3660

      gtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttacatgatc
3661  ---------+---------+---------+---------+---------+---------+ 3720

      ccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcagaagtaa
3721  ---------+---------+---------+---------+---------+---------+ 3780

      gttggccgcagtgttatcactcatggttatggcagcactgcataattctcttactgtcat
3781  ---------+---------+---------+---------+---------+---------+ 3840

      gccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctgagaata
3841  ---------+---------+---------+---------+---------+---------+ 3900

      gtgtatgcggcgaccgagttgctcttgcccgtcgtcaatacgggataataccgcgccaca
3901  ---------+---------+---------+---------+---------+---------+ 3960

      tagcagaactttaaaagtgctcatcattggaaaacgttcttcggggcgaaaactctcaag
```

```
3961 ----------+---------+---------+---------+---------+---------+ 4020

      gatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactgatcttc
4021 ----------+---------+---------+---------+---------+---------+ 4080

      agcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaatgccgc
4081 ----------+---------+---------+---------+---------+---------+ 4140

      aaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttttcaata
4141 ----------+---------+---------+---------+---------+---------+ 4200

      ttattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgtattta
4201 ----------+---------+---------+---------+---------+---------+ 4260

      gaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgacgtcta
4261 ----------+---------+---------+---------+---------+---------+ 4320

      agaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccctttcg
4321 ----------+---------+---------+---------+---------+---------+ 4380

      tc
4381 -- 4382
```

Fig. 26

pUHD10.3-hflt3 Ligand-exon 6 plasmid Length: 4224

```
   1 CTCGAGTTTA CCACTCCCTA TCAGTGATAG AGAAAAGTGA AAGTCGAGTT
  51 TACCACTCCC TATCAGTGAT AGAGAAAAGT GAAAGTCGAG TTTACCACTC
 101 CCTATCAGTG ATAGAGAAAA GTGAAAGTCG AGTTTACCAC TCCCTATCAG
 151 TGATAGAGAA AAGTGAAAGT CGAGTTTACC ACTCCCTATC AGTGATAGAG
 201 AAAAGTGAAA GTCGAGTTTA CCACTCCCTA TCAGTGATAG AGAAAAGTGA
 251 AAGTCGAGTT TACCACTCCC TATCAGTGAT AGAGAAAAGT GAAAGTCGAG
 301 CTCGGTACCC GGGTCGAGTA GGCGTGTACG GTGGGAGGCC TATATAAGCA
 351 GAGCTCGTTT AGTGAACCGT CAGATCGCCT GGAGACGCCA TCCACGCTGT
 401 TTTGACCTCC ATAGAAGACA CCGGGACCGA TCCAGCCTCC GCGGCCCCGA
 451 ATTCCggggc ccccggccga aATGacagtg ctggcgccag cctggagccc
 501 aacaacctat ctcctcctgc tgctgctgct gagctcggga ctcagtggga
 551 cccaggactg ctccttccaa cacagcccca tctcctccga cttcgctgtc
 601 aaaatccgtg agctgtctga ctacctgctt caagattacc cagtcaccgt
 651 ggcctccaac ctgcaggacg aggagctctg cggggggcctc tggcggctgg
 701 tcctggcaca gcgctggatg gagcggctca agactgtcgc tgggtccaag
 751 atgcaaggct tgctggagcg cgtgaacacg gagatacact ttgtcaccaa
 801 atgtgccttt cagccccccc ccagctgtct tcgcttcgtc cagaccaaca
 851 tctcccgcct cctgcaggag acctccgagc agctggtggc gctgaagccc
 901 tggatcactc gccagaactt ctcccggtgc ctggagctgc agtgtcagcc
 951 cgtagagacg gtgtttcacc gtgtcagcca ggatggtctc gatctcctga
1001 cctcgTGAtc tgcccgcctc ggcctcccaa agtgctagga ttacagatac
1051 tcctcaaccc tgccaccccc atggagtccc cggccctgg aggccacagc
1101 cccgacagcc ccgcagcccc ctctgctcct cctactgctg ctgcccgtgg
1151 gcctcctgct gctggccgct gcctggtgcc tgcactggca gaggacgcgg
1201 cggaggacac cccgccctgg ggagcaggtg ccccccgtcc ccagtcccca
1251 ggacctgctg cttgtggagc actgacctgg ccaaggcctc atcctgcgga
1301 gccttaaaca acgcagtgag acagacatct atcatcccat tttacagggg
1351 aggatactga ggcacacaga ggggagtcac cagccagagg atgtatagcc
1401 tggacacaga ggaagttggc tagaggccgg tcccttcctt gggcccctct
1451 cattccctcc ccagaatgga ggcaacgcca gaatccagca ccggccccat
1501 ttacccaact ctgaacaaag cccCCGGAAT TCGAGCTCGG TACCCGGGGA
```

Fig. 26a

1551 TCCTCTAGAG GATCCAGACA TGATAAGATA CATTGATGAG TTTGGACAAA

1601 CCACAACTAG AATGCAGTGA AAAAAATGCT TTATTTGTGA AATTTGTGAT

1651 GCTATTGCTT TATTTGTAAC CATTATAAGC TGCAATAAAC AAGTTAACAA

1701 CAACAATTGC ATTCATTTTA TGTTTCAGGT TCAGGGGGAG GTGTGGGAGG

1751 TTTTTTAAAG CAAGTAAAAC CTCTACAAAT GTGGTATGGC TGATTATGAT

1801 CCTGCAAGCC TCGTCGTCTG GCCGGACCAC GCTATCTGTG CAAGGTCCCC

1851 GGACGCGCGC TCCATGAGCA GAGCGCCCGC CGCCGAGGCA AGACTCGGGC

1901 GGCGCCCTGC CCGTCCCACC AGGTCAACAG GCGGTAACCG GCCTCTTCAT

1951 CGGGAATGCG CGCGACCTTC AGCATCGCCG GCATGTCCCC TGGCGGACGG

2001 GAAGTATCAG CTCGACCAAG CTTGGCGAGA TTTTCAGGAG CTAAGGAAGC

2051 TAAAATGGAG AAAAAAATCA CTGGATATAC CACCGTTGAT ATATCCCAAT

2101 GGCATCGTAA AGAACATTTT GAGGCATTTC AGTCAGTTGC TCAATGTACC

2151 TATAACCAGA CCGTTCAGCT GCATTAATGA ATCGGCCAAC GCGCGGGGAG

2201 AGGCGGTTTG CGTATTGGGC GCTCTTCCGC TTCCTCGCTC ACTGACTCGC

2251 TGCGCTCGGT CGTTCGGCTG CGGCGAGCGG TATCAGCTCA CTCAAAGGCG

2301 GTAATACGGT TATCCACAGA ATCAGGGGAT AACGCAGGAA AGAACATGTG

2351 AGCAAAAGGC CAGCAAAAGG CCAGGAACCG TAAAAAGGCC GCGTTGCTGG

2401 CGTTTTTCCA TAGGCTCCGC CCCCCTGACG AGCATCACAA AAATCGACGC

2451 TCAAGTCAGA GGTGGCGAAA CCCGACAGGA CTATAAAGAT ACCAGGCGTT

2501 TCCCCCTGGA AGCTCCCTCG TGCGCTCTCC TGTTCCGACC CTGCCGCTTA

2551 CCGGATACCT GTCCGCCTTT CTCCCTTCGG GAAGCGTGGC GCTTTCTCAA

2601 TGCTCACGCT GTAGGTATCT CAGTTCGGTG TAGGTCGTTC GCTCCAAGCT

2651 GGGCTGTGTG CACGAACCCC CCGTTCAGCC CGACCGCTGC GCCTTATCCG

2701 GTAACTATCG TCTTGAGTCC AACCCGGTAA GACACGACTT ATCGCCACTG

2751 GCAGCAGCCA CTGGTAACAG GATTAGCAGA GCGAGGTATG TAGGCGGTGC

2801 TACAGAGTTC TTGAAGTGGT GGCCTAACTA CGGCTACACT AGAAGGACAG

2851 TATTTGGTAT CTGCGCTCTG CTGAAGCCAG TTACCTTCGG AAAAAGAGTT

2901 GGTAGCTCTT GATCCGGCAA ACAAACCACC GCTGGTAGCG GTGGTTTTTT

2951 TGTTTGCAAG CAGCAGATTA CGCGCAGAAA AAAAGGATCT CAAGAAGATC

3001 CTTTGATCTT TTCTACGGGG TCTGACGCTC AGTGGAACGA AAACTCACGT

3051 TAAGGGATTT TGGTCATGAG ATTATCAAAA AGGATCTTCA CCTAGATCCT

3101 TTTAAATTAA AAATGAAGTT TTAAATCAAT CTAAAGTATA TATGAGTAAA

3151 CTTGGTCTGA CAGTTACCAA TGCTTAATCA GTGAGGCACC TATCTCAGCG

Fig. 26a

3201 ATCTGTCTAT TTCGTTCATC CATAGTTGCC TGACTCCCCG TCGTGTAGAT
3251 AACTACGATA CGGGAGGGCT TACCATCTGG CCCCAGTGCT GCAATGATAC
3301 CGCGAGACCC ACGCTCACCG GCTCCAGATT TATCAGCAAT AAACCAGCCA
3351 GCCGGAAGGG CCGAGCGCAG AAGTGGTCCT GCAACTTTAT CCGCCTCCAT
3401 CCAGTCTATT AATTGTTGCC GGGAAGCTAG AGTAAGTAGT TCGCCAGTTA
3451 ATAGTTTGCG CAACGTTGTT GCCATTGCTA CAGGCATCGT GGTGTCACGC
3501 TCGTCGTTTG GTATGGCTTC ATTCAGCTCC GGTTCCCAAC GATCAAGGCG
3551 AGTTACATGA TCCCCCATGT TGTGCAAAAA AGCGGTTAGC TCCTTCGGTC
3601 CTCCGATCGT TGTCAGAAGT AAGTTGGCCG CAGTGTTATC ACTCATGGTT
3651 ATGGCAGCAC TGCATAATTC TCTTACTGTC ATGCCATCCG TAAGATGCTT
3701 TTCTGTGACT GGTGAGTACT CAACCAAGTC ATTCTGAGAA TAGTGTATGC
3751 GGCGACCGAG TTGCTCTTGC CCGGCGTCAA TACGGGATAA TACCGCGCCA
3801 CATAGCAGAA CTTTAAAAGT GCTCATCATT GGAAAACGTT CTTCGGGGCG
3851 AAAACTCTCA AGGATCTTAC CGCTGTTGAG ATCCAGTTCG ATGTAACCCA
3901 CTCGTGCACC CAACTGATCT TCAGCATCTT TTACTTTCAC CAGCGTTTCT
3951 GGGTGAGCAA AAACAGGAAG GCAAAATGCC GCAAAAAAGG GAATAAGGGC
4001 GACACGGAAA TGTTGAATAC TCATACTCTT CCTTTTTCAA TATTATTGAA
4051 GCATTTATCA GGGTTATTGT CTCATGAGCG GATACATATT TGAATGTATT
4101 TAGAAAAATA AACAAATAGG GGTTCCGCGC ACATTTCCCC GAAAAGTGCC
4151 ACCTGACGTC TAAGAAACCA TTATTATCAT GACATTAACC TATAAAAATA
4201 GGCGTATCAC GAGGCCCTTT CGTC

Fig. 26a

Recovery of insert: EcoRI

pLXSN / hIL-7
(6432 bp)

S587
M648
K654
LTR

E1645
pvu II 2040
E2203
X
B2218
SV
H2565
Neo

K3962
M3956
S3895
X3775
LTR

B=BamHI
E=EcoRI
H=Hind3
K=Kpn I
M=Sma I
S=Sst I
X=Xba I
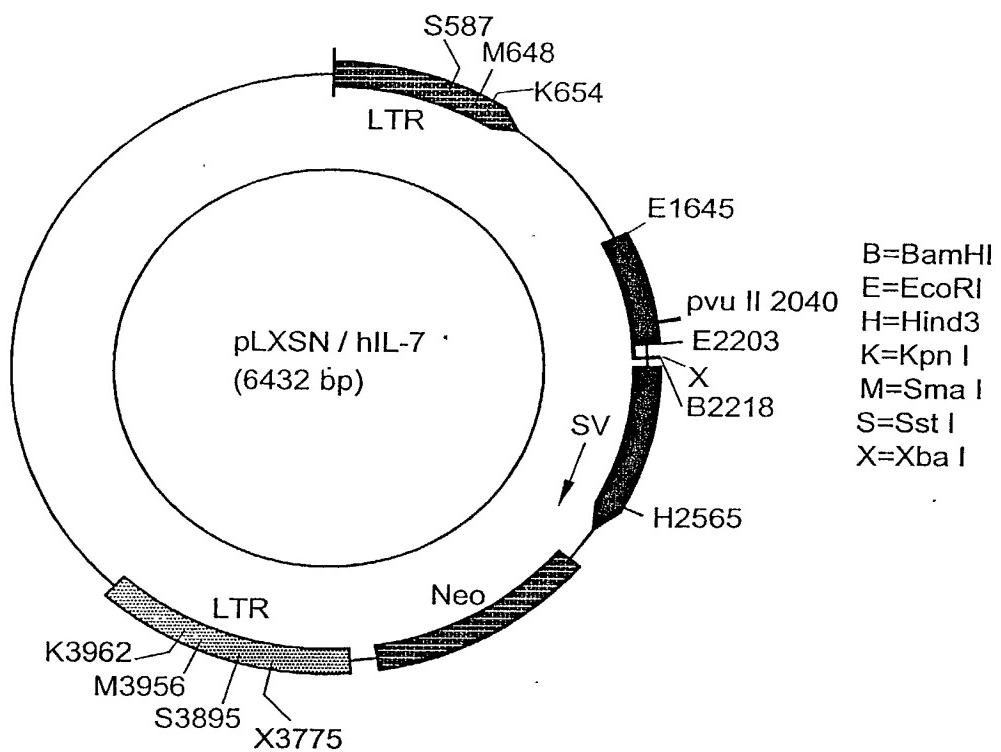
Ref. (HSIL7A)
Insert:375(-10)
E

770
pvu II

933(+5)
E

FIG.27

Plasmid-chart

Designation: pLXSN/hIL-2   Log no.:
Insert: hIl-2 (473bp)   Location:
Vector: pLXSN (5874bp)   Selection: Amp
Recovery of insert: Eco RI /Bam HI   Ref.: pLXSN BioTechniques 7,980-987(1989)
     Hpal / Bam HI   hIL-2 Nature 302,305-309(1983)
     Xho I / Bam HI
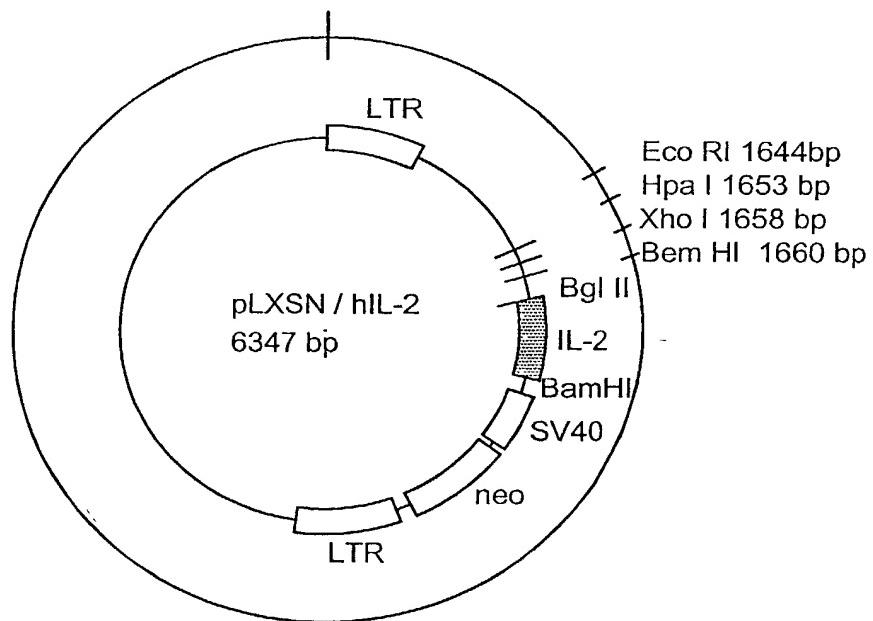
Insert: Bgl II
5' AGA TCT ACA - IL-2 - TAA TTA AGT BamHI 473 bp

FIG.28